

Running head: PROVIDER TYPE AND PATIENT SATISFACTION

Graduate Management Project

Affects of Provider Type on Patient Satisfaction, Productivity and Cost Efficiency

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CDR Chris Garcia, Ph.D., M.B.A.

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LCDR Timothy Foster, NC, USN

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Disclaimer

The views expressed in this paper are those of the author and do not reflect the official policy or position of Baylor University, the Department of the Navy, the Department of the Army, the Department of Defense, nor the United States Government.

Statement of Ethical Conduct in Research

The data used in this study were obtained from automated government databases. No personal identifiers were used. The author declares no conflict of interest or financial interest in any of the facilities included in this study.

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Abstract

The purpose of this one year retrospective quantitative study is to determine if the type of provider (physician, nurse practitioner, and physician assistant) influences patient satisfaction and productivity. As the prospective payment system becomes more widely used in the military healthcare system, patient satisfaction and provider productivity will become more important for financial reimbursement. This study is useful to determine the provider types most desired and accepted by military patients, in addition to yielding a satisfactory workload output. Many studies have been conducted in the civilian community; however, few studies address these issues within the military system. 104,013 Army beneficiaries who visited their Primary Care Managers (PCM) from January 2004 to December 2004, were surveyed and their results were used as the sample for this study. Provider efficiency within CONUS Military Treatment Facilities (MTFs) was evaluated using the period of January 2004 to December 2004, with a sample size of 20,421. The alpha level was set at .05 and multiple linear regression and analysis of variance were used to determine the predictive value of the model. The results show that there is a statistically significant positive relationship between nurse practitioners and patient satisfaction. The analysis of variance showed that physician assistants have a lower cost per visit ratio, and there is no difference between provider types and relative value units.

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Introduction

The purpose of this one year retrospective quantitative study is to determine if the type of provider, defined as a physician, a nurse practitioner, or a physician assistant, influences patient satisfaction and if there is a difference in their productivity and cost efficiency. For the purpose of this study productivity is operationally defined as encounters per month, relative value units per month and cost efficiency as cost per visit ratio. In the next four years, prospective payment will be phased-in. The prospective payment system allocates money to the Military Treat Facilities (MTFs) based on business goals and productivity (Winkenwerder, 2004). As the prospective payment system becomes more widely used in the military, patient satisfaction, provider productivity, and cost efficiency will become more important for financial reimbursement.

Problem Statement

The budget for military treatment facilities (MTFs) has been historically based on the previous year's budget, plus inflation. With the implementation of the prospective payment system, the MTF Commanders will need to examine ways to demonstrate effectiveness of care and cost efficiency to compete with purchased care alternatives. Many studies have been published comparing physicians and nurse practitioners; however, few studies have addressed the military health care system. Operational commitments and practice patterns make the military health care system unique; thus, it is difficult to generalize the results from studies conducted at civilian sites to military treatment facilities. The conditions that prompted this study are changes in the MTF reimbursement

system, rising costs of health care, and the limited studies that are generalizable to military healthcare. The results of this study will assist decision makers in identifying human resources that increase productivity and patient satisfaction.

Research Question

Is there a relationship between provider type and patient satisfaction? Is there a difference between provider type and productivity and cost efficiency.

Review of the Literature

The literature review will be divided into four sections. Section I provides the theoretical background. Section II discusses the financial impact and factors influencing the cost of healthcare. Section III discusses the different types of primary care providers and their unique educational preparation which may contribute to differences in practice patterns and patient satisfaction outcomes. Section IV deals with patient satisfaction.

Section I Theoretical Background

Donabedian (1966) described quality health care with the following constructs: structures, processes, and outcomes. These constructs can be further defined with variables that can be objectively measured. Structures refer to the relatively fixed characteristics of health care organization and those who staff it. Structures can include educational training and certification of those who provide care. Staffing levels, building organization, and equipment are considered fixed structures that may be changed, but not rapidly. Having adequate structures in place contributes to quality; however, it does not guarantee quality (Donabedian, 1993).

Ransom, Maulik and Nash (2005) describe processes as what takes place during the delivery of care. This includes appropriateness of actions and skill. Excellent processes do not guarantee good outcomes and good outcomes do not indicate good processes. Some patients get well or recover despite inappropriate processes and other patients may have poor outcomes after receiving the best care. Even with this apparent contradiction, good processes most often result in good outcomes (Ranson et al, 2005). According to Perrin (2002), understanding how processes and structures relate to an outcome is valuable because processes and structures can be manipulated and controlled. Therefore, by carefully studying patient satisfaction and productivity, potential improvements in key processes and structures may be achieved. In order for a public health system to achieve its mission, appropriate structures and processes must be in place (Handler, Issel & Turnock, 2001)

Section II Financial Concepts

Provider productivity and costs have been addressed by civilian managed care organizations (MCOs) from both supply and demand side economics (Kongstvedt, 2002). The civilian healthcare system has many differences from the military system in terms of economics and cost control. In the civilian sector, prospective payment systems pass a certain amount of financial risk to providers and gives financial incentives to providers who are cost efficient. The military healthcare system has no way to pass risk directly to providers or give equivalent productivity incentives to providers. The prospective payment system that is being implemented in the military health system partially addresses this by giving

the MTF more funding for higher productivity. These funds may help the organization; however, they do not give the providers direct financial incentives to work longer and take on more patients like the civilian model allows. In order to curb demand for healthcare, civilian MCOs can decrease benefits, increase copays, and increase deductibles. Military healthcare benefits, copays, and deductibles are controlled by congressional legislation; therefore, MTF commanders have few demand-side options to curb utilization (Code of Federal Regulations, Title 32, Part 199). In 2002, Congress enacted a law in the military healthcare system that enabled women to choose civilian maternity care providers without a non-availability statement or prior approval from an MTF. This provided more choice for the maternity patient and put the MTF in competition with the civilian healthcare system for obstetric services (National Defense Authorization Act for Fiscal Year 2002). In the civilian sector, human resources can be optimized for provider productivity and cost efficiency. In the military healthcare system, human resources are often determined by operational commitments and not provider productivity. With the limitations on supply-side cost controls, demand-side utilization management, and human resources, MTF Commanders will need to optimize available resources and develop innovative strategies to maintain funding in a prospective payment environment.

Provider productivity and cost efficiency can be measured in multiple ways which include: simple patient visit counts, Relative Value Units (RVUs), and resource utilization. Simple visit counts entail counting the number of patient encounters a provider sees in a day. It is a very easy method of workload

measurement, but it does not account for differing levels of illness and complications that a patient presents with. RVUs are standardized clinical workload values based on Current Procedural Terminology (CPT) codes (Glass & Anderson, 2002). More intensive services receive a higher value than low intensity services. This model is more accurate at measuring workload than counting the number of patient encounters, but it has some limitations. Coleman, Moran, Serfilippi, Mulinski, Rosenthal, Gordon, and Mogielnicki (2003) noted that RVUs are higher for procedures than for cognitive and decision making skills, which makes procedure-oriented providers seem more productive than providers who manage complex patients. Another significant weakness to RVUs is coding compliance. If visits are not coded accurately, the workload will be artificially inflated or deflated. Glass and Anderson (2002) recommend using more than one measurement of provider workload.

Resource utilization is another method of measuring workload in terms of costs. One way to define the cost to the MTF of providing healthcare is according to fixed and variable costs. Fixed costs include building maintenance, utilities, telephone, durable medical equipment, and custodial costs. Fixed costs remain even if no patients are seen. Variable costs are costs that change according to the volume of patients seen and the resources consumed. Resources include such things as prescriptions, lab tests, radiological studies, and consumable supplies. Variable costs increase as the volume of patients increases (Zellman, 2004). Providers can control the variable cost of healthcare

by ordering tests, making referrals, prescribing medications and hospitalizing patients.

The cost of health care is driven partially by the practice patterns of providers. This variation in practice may be related to where the provider was trained, patient expectations, and practice style. In an article by Nagurney, Braham, and Reader (1979), clinical decisions by providers accounted for 55% of total health care costs. Providers, who order more tests and prescribe more medications than their peers, utilize more resources per patient. A high resource utilization rate leads to a higher cost for the system. Cost per visit ratio is a useful measure of resource utilization. It is calculated by dividing the total variable cost for period of time by the total patient encounters during that same period. This ratio shows how efficient the providers are at utilizing resources and may be affected by how a provider was trained.

Section III Provider Differences

Physicians, physician assistants, and nurse practitioners are trained differently and have a different focus on patient care. Physicians focus primarily on curative medicine (Alpert, Fjone & Condela, 2002). Nurse practitioners emphasize patient education, disease prevention, and health promotion (Sherwood, Brown & Fay & Wardell, 2002). Nurse practitioners in primary care go beyond medical care to include roles as a patient educator, motivator, administrator, and advocate (Alpert, Fjone & Condela, 2002). Physician assistants are trained in the medical model similar to physician but with shorter duration and limited scope (American Academy of Physician Assistants, 2006).

The training of nurse practitioners varies and there are currently three paths to becoming a nurse practitioner. The first path is through a master's degree in nursing in the clinical area of emphasis such as family practice. The candidate must first possess a bachelor's degree in nursing and at least one year of nursing experience prior to applying for nurse practitioner training with total training time of seven to eight years. The second path is to skip over the master's degree and obtain a clinical doctorate in nursing with a total training time of eight to nine years. The nursing doctorate provides additional training in research and teaching methods. The third path is to obtain a post-master's certification. This path is used when nurse already possesses a master's in another nursing specialty and wants to broaden skills and abilities. Nurse practitioner's have an independent license and in most states can prescribe medications according with the nurse practice acts of each state (Apert et al. 2002).

The training of a physician differs from a nurse practitioner. In order to apply to medical school, medical students first must obtain a bachelor's degree with a significant emphasis in science. Students may then choose between two types of medical schools: allopathic or osteopathic. The allopathic medical school emphasizes curative medicine and surgery. The osteopathic medical schools focus on primary care and holistic measures including spinal manipulation treatments. Upon completion of their chosen path both allopathic and osteopathic physicians are licensed by their state and may become board certified in any medical specialty (Princeton Review, 2006). Medical school is

four years in length followed by a one year internship and two to five year residency with a total training time of 11-15 years depending upon specialty (American Medical Association, 2005).

Physician assistants follow a very similar curriculum as physicians, but the training time is much shorter. Physician Assistants are trained along with medical students at medical schools and may even take some of the same courses as the medical students. Physician assistants graduate with a bachelor's degree and may apply for certification with a training time of four years. Physician assistants work under a supervising physician's license and often follow the practice pattern of his or her supervisor (American Academy of Physician Assistants, 2006).

Section IV Patient Satisfaction

Patient satisfaction is a psychological outcome that is frequently measured because of its significance to organizations. Patient satisfaction is important because dissatisfied customers may leave the military primary care system in favor of the more expensive purchased care system. In addition, dissatisfied customers may tell friends and family of their dissatisfaction and give a negative perception of an organization. In a study by Horrocks, Anderson, and Salisbury (2002), a meta-analysis of 34 studies found that patients were more satisfied with nurse practitioners than physicians. The higher satisfaction rate may be due to differences in training and more time spent with patients (Horrocks et al., 2002). In a study by Kinnersley, Parry, Clement, Archard, Turton, Stainthorpe, Fraser, Butler, and Rogers (2000), nurse practitioners had higher satisfaction scores,

equivalent patient health outcomes, and spent more time with patients than physicians. Although nurse practitioner's performed well when compared to physicians, the longer time spent with patients can reduce productivity and thereby reduce cost effectiveness (Venning, Durie, Roland, Roberts, & Leese, 2000). A large meta-analysis study by Laurant, Hermans, Braspenning, Grol, and Sibbald (2005), in which nurse practitioners were compared with physicians in primary care setting, found no significant differences in patient outcomes but a higher patient satisfaction with nurse practitioners.

Purpose

The purpose of this one year retrospective quantitative study is to determine if the type of provider influences patient satisfaction and if there are differences in provider productivity and cost efficiency. Patient satisfaction with the provider is operationally defined as the overall satisfaction score on a 5-point scale with one being completely disagree and five being completely agree. Productivity is operationally defined as the number of patients seen per month, relative value units of patients seen, and cost efficiency is operationally defined as cost per visit ratio.

Hypotheses

Model 1 Patient Satisfaction

H0—There is no relationship between provider type and patient satisfaction levels

Ha – Patient satisfaction is related to provider type

Model 2 Provider Productivity by RVUs

H0 – There is no difference between provider type and RVU productivity

Ha – There is a difference in provider type and RVU productivity

Model 3 Provider Productivity by Encounters

H0 – There is no difference between provider type and number of encounters

Ha – There is a difference between provider type and number of encounters

Model 4 Provider Cost Efficiency

H0 – There is no difference between provider type and cost per visit ratio

Ha—There is a difference between provider type and cost per visit ratio

Equations

Model 1 Patient Satisfaction

Overall patient satisfaction = provider type + facility type + seen by PCM + patient age group + gender + provider rank + month + civilian provider + patient category

Model 2 Productivity by RVUs

RVUs = provider type + calendar month

Model 3 Productivity by number of encounters

Encounters = provider type + calendar month

Model 4 Productivity by cost per visit ratio

Cost/Visit ratio= provider type + calendar month

Data Sources

Cases were taken from the M2 datamart for productivity measures for primary care providers for calendar year 2004. The cases for patient satisfaction were taken from the Provider Level Patient Satisfaction Survey (PLPSS) maintained in a database at Army Medical Department (AMEDD) from January 2004 to December 2004. The PLPSS is used by the military to assess beneficiary satisfaction with a provider, see Appendix A. For the purpose of this study only first eight questions, page 1 of PLPSS, were used. The PLPSS was initiated by the AMEDD leadership in 2002 to give providers and MTF leadership timely feedback from patients. Physicians, nurse practitioners and physician assistants who have at least 1000 outpatient encounters per year are provided with patient satisfaction feedback. Patients are surveyed within 48 hours of a visit using a 20 question form. A five point scale was used for questions 1 through 7 where 1 equals completely disagree and 5 equals completely agree. Question number 8 was yes/no. Not all patients filled out questions 9 through 20; therefore, only data from the first eight questions were used. Patients are chosen so that a target of 200 surveys is completed annually per provider (PLPSS, 2006).

The M2 datamart collects data from data repositories throughout the Department of Defense (DoD) and includes purchased care and direct care. The data from the M2 datamart are derived from multiple redundant data sources and are prescreened by the database administrators. Inconsistent or extraordinary numbers are questioned and corrected ensuring reliability of the data.

Ethical Considerations

The data was extracted from existing government data sources and no personal identifiers were used in this study.

Research Methods and Procedures

The methods and procedures for the patient satisfaction component of this study were replicated from a previous study by Mangelsdorff and Finstuen (2005), with some refinements. The variables fall into three categories: individual patient variables (age group, status, and gender), situational variables (MTF size, and provider rank, month) and beliefs about care (time spent, listened, understood, courtesy, explained, helped with problem) as described by Mangelsdorff and Finstuen (2005). The refinements included the addition of provider type and provider rank and exclusion of beliefs about care variables. The TRICARE enrollment status and region where the patient was enrolled were not used because these variables were not captured by the database. Only Army beneficiaries were included in the survey from January 2004 to December 2005.

The unit of analysis is provider type: physician, nurse practitioner, and physician assistant. The patient satisfaction survey results originally contained 319,872 cases; however, the survey did not distinguish between primary care providers and specialists. First, the cases were filtered by appointment type and all emergency room appointments were eliminated. Although nurse practitioners and physician assistants work in emergency rooms, the focus of this study was on primary care rendered in the outpatient clinic. Second, the cases were filtered

by the provider specialty and provider class variables; see Appendix B and Appendix C for description of these variables. In cases where the provider was a specialist, the case was filtered out. In some of the cases, the provider class variable had the value of "Provider," which could have referred to all types of providers. When this occurred, the provider specialty variable was used to determine the provider type. After eliminating all specialty providers, the remaining cases were 105,211. Of those cases, 304 were removed due to vague or incomplete provider specialty description and 894 cases were removed due to missing data bringing the final case count to 104,013. The provider class and provider specialty variables were recoded to three mutually exclusive binary variables of 1 for present and 0 for absent, see Appendix D for Statistical Program for Social Sciences (SPSS) syntax used to filter provider type variables. Patient category was defined as active duty, active duty family members, retirees, and other. The raw data contained 225 different patient categories, see Appendix E. These were re-coded into one of four patient categories for analysis.

The unit of analysis for provider productivity measures and cost efficiency is provider type. The following variables from M2 were used: fiscal year 2004, provider type (Limited to Family Practice physicians, Family Nurse Practitioners, and Physician Assistants), calendar month, Simple RVUs, Total Encounters, and cost per visit ratio, which is variable cost divided by total encounters. Business Objects was used to extract 34,335 cases from M2 in the direct care (i.e., MTF) professional encounters table. The treatment facilities were limited to those in

the continental United States. Only countable visits for primary care clinics with MERPS code BGA and BHA were included. Inpatient visits were excluded. The providers were limited to family practice physicians (coded 001), physician assistants (coded 901), and family nurse practitioners (coded 604), see Appendix F for query visual. In order to prevent the averages from being skewed by part-time providers, cases were limited to full-time providers. Full-time was operationally defined as greater than 100 encounters per month. The assumption being that a full-time provider will average five or more encounters per day. After filtering out the cases with less than 100 encounters per month, the final case count was 20,421.

The productivity and cost efficiency measures were divided into three models. Each model had benefits and limitations. By including more than one measure, the researcher have a more accurate description of productivity (Glass,2005). Calendar month was included to determine if there were seasonal differences. The first model used number of encounters as the dependent variable and provider type and calendar month as the independent variables. Encounters were operationally defined as face to face clinic visits with a provider that were entered into a MTF information system and coded using CPT and ICD9 codes. Telephone consults and inpatient visits were excluded. The second model used RVUs as the independent variable. The third model used cost per visit ratio. This simple ratio can be used with other measures of productivity to give an indication of which providers are most cost effective in use of resources (Vincent, 2002). Cost per visit ratio is derived by dividing the variable cost of

production by total number of patient visits (Vincent, 2002). The M2 data dictionary (M2, 2006) defines the variable cost as MTF wide average based on Ambulatory Patient Groups (APG) that includes supply and ancillary costs. This cost varies from encounter to encounter.

The analyses used for Model 1 were descriptive statistics and multiple linear regression. Multiple linear regression was chosen to determine if the independent variables were predictive of the dependent variable, overall patient satisfaction. Model 1 was subdivided by following groups: age, gender, MTF type, provider rank, provider type and a comparative analysis was done using the general linear model. The descriptive statistics for Model 2-4 are summarized in Table 2. The general linear model was used for all three of these models to find if there was a difference in provider type and the dependent variables.

Results

The findings will be presented as follows: descriptive statistics for each model, graphs to visually show each model, and then inferential statistics for each model. Table I summarizes the descriptive statistics for the patient satisfaction variables with an alpha level of .05 used for all statistical tests. The overall patient satisfaction, question number 7 on the PLSS form, average was 4.54 with a standard deviation of .986. The age group with the largest number of cases was 45-64 year of age with 27,323 cases. The scores were slightly above the overall mean for the 17 and under age group and declined to less than the over mean for age 18 thru 24. The standard deviation for this age group was greater than all other groups. From ages 45 to 64 the mean satisfaction score

was greater than the overall average. The age group of 65 or greater had the highest mean score of 4.83 and least variation with a standard deviation of .603, which indicates the over 65 patients are consistently more satisfied with the services they receive.

Table 1
Descriptive Statistics: Demographic Variables Predictive of Patient Satisfaction

Variable	No	%	Patient Satisfaction	
			Mean	S.D.
Overall Patient Satisfaction	104,013	100.00	4.54	0.986
Age Group				
0-17	16,175	15.6	4.56	0.969
18-24	13,543	13.0	4.33	1.156
25-34	17,701	17.0	4.38	1.135
35-44	19,905	19.1	4.51	0.996
45-64	27,323	26.3	4.66	0.848
>= 65	9,366	9.0	4.83	0.603
Gender				
Male	49,809	47.9	4.54	0.973
Female	54,204	52.1	4.54	0.999
MTF Type				
Medical Center	16,989	16.3	4.61	0.920
Hospital	33,706	32.4	4.57	0.959
Clinic	53,318	51.3	4.50	1.022
Rank				
Civilian	62,303	59.9	4.52	1.007
O1	1,907	1.8	4.46	1.067
O2	2,838	2.7	4.50	1.015
O3	17,521	16.8	4.55	0.987
O4	14,270	13.7	4.62	0.901
O5	3,911	3.8	4.62	0.902
O6	1,114	1.1	4.72	0.776
Unknown	149	.1	4.50	1.024
Patient Category				
Active Duty	28,904	27.8	4.40	1.096
Active Duty Family Member	33,535	32.2	4.51	1.030
Retired	13,871	13.3	4.74	0.743
Other	27,703	26.6	4.63	0.986
Provider PCM	29,721	28.6	4.65	0.872
Provider Type				
Physician	49,880	48.0	4.55	0.981
Nurse Practitioner	23,901	23.0	4.63	0.884
Physician Assistant	30,232	29.0	4.54	0.986

Beneficiary category had active duty and active duty family members with 60% of cases. Active duty had the lowest satisfaction mean at 4.40 while retirees had the highest at 4.74. Figure 4 illustrates the relationship between provider type and patient satisfaction with respect to patient category. Nurse practitioners scored higher with all four patient categories. Active duty and active duty family members had the lowest mean satisfaction score for all provider types. Retirees appeared to be the most satisfied with care. Retirees and beneficiaries in the "other" category were positively correlated with patient satisfaction.

Physicians accounted for 48% of all cases while nurse practitioners had 23% and Physician assistants had 29%. Nurse practitioners had the highest mean satisfaction score of 4.63 and the lowest standard deviation. The beliefs about the care variables were not included because of the high multiple collinearity. All beliefs about care variables had a correlation of greater than .7 with the dependent variable, overall patient satisfaction. According to Mangelsdorff (2006), multiple collinearity violates the assumption of independence of variables and artificially inflates the R-squared value (personal communication, April, 13, 2006). In order to minimize this effect, the variables pertaining to beliefs about care were excluded.

The mean scores for age group had a pattern of an inverted arc, see Figure 1. The surveys were almost equally distributed between males and females with an average satisfaction score of 4.54. There was not a statistically significant difference between genders. The MTF type showed medical centers

with a surprisingly higher level of satisfaction than hospitals and clinics as shown in Figure 2.

Figure 1

Overall Satisfaction with Provider by Age Group

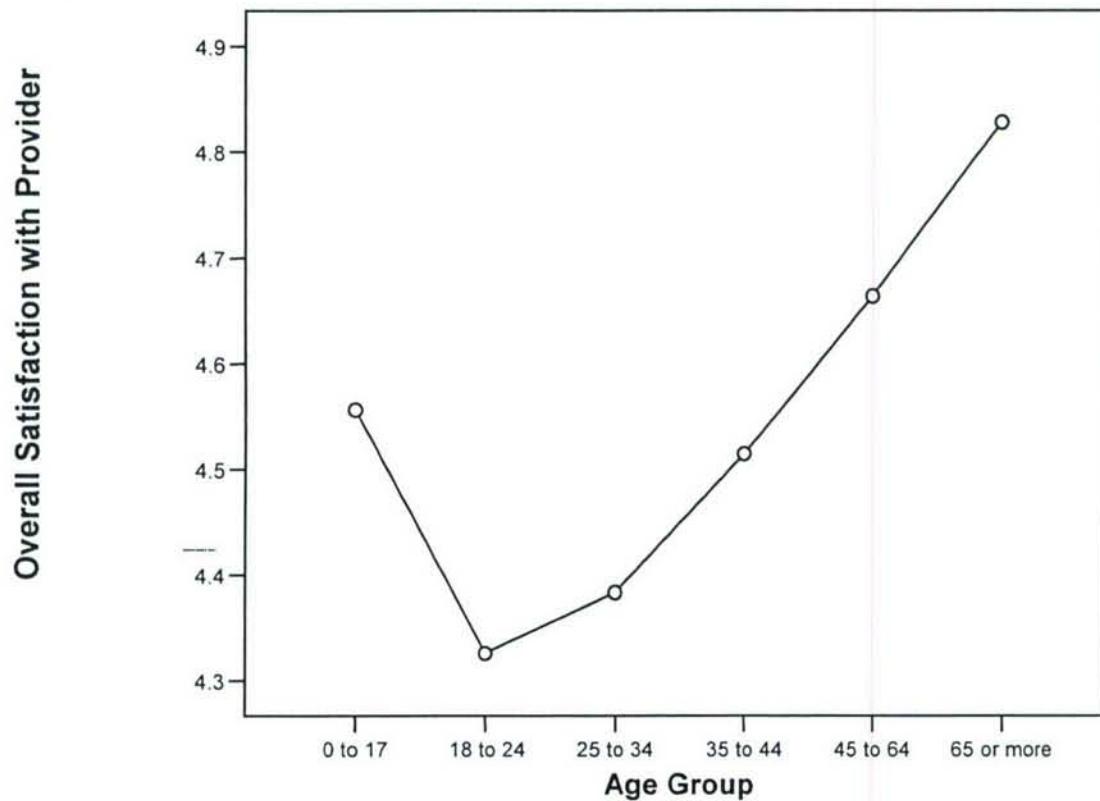
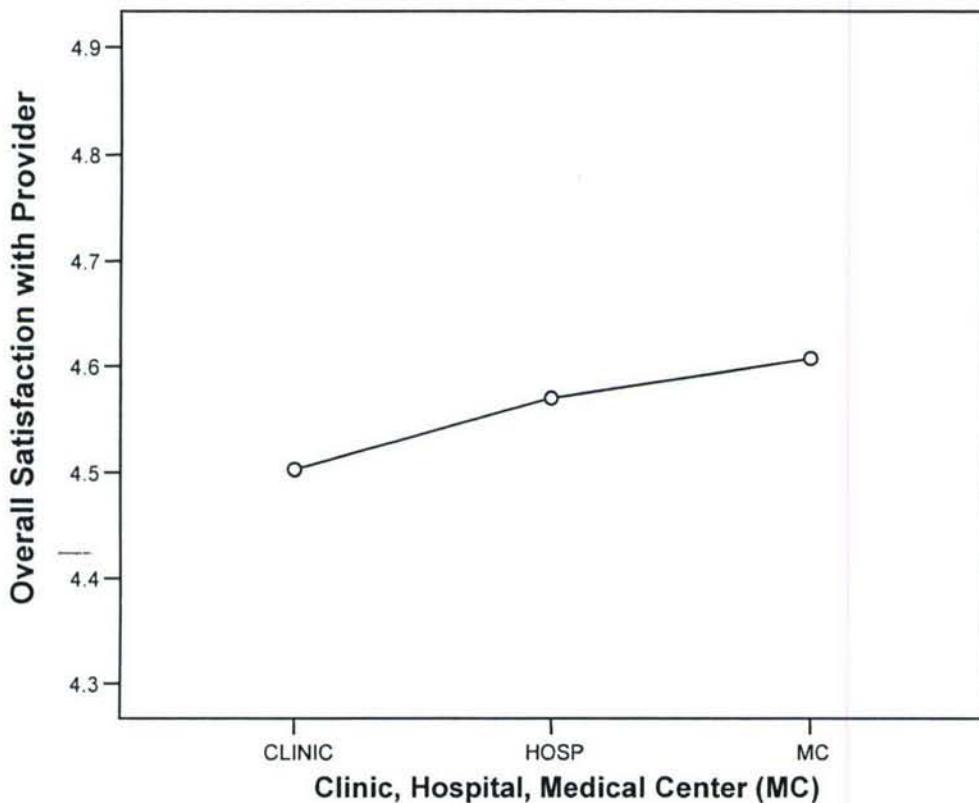


Figure 2

Overall Satisfaction with Provider by Facility Type

Rank served as a proxy for experience since most providers start as an O1 to O3. Physicians and nurses, who enter the military with significant civilian experience, may be commissioned at a higher rank than O3. In some cases, senior nurses went back to school to become nurse practitioners. Rank was predominantly civilian representing over 59% of the providers. Civilian providers had the lowest satisfaction scores while senior military providers who had higher ranks had the highest, as shown in Figure 3. Overall satisfaction with provider by month is displayed in Figure 4.

Figure 3

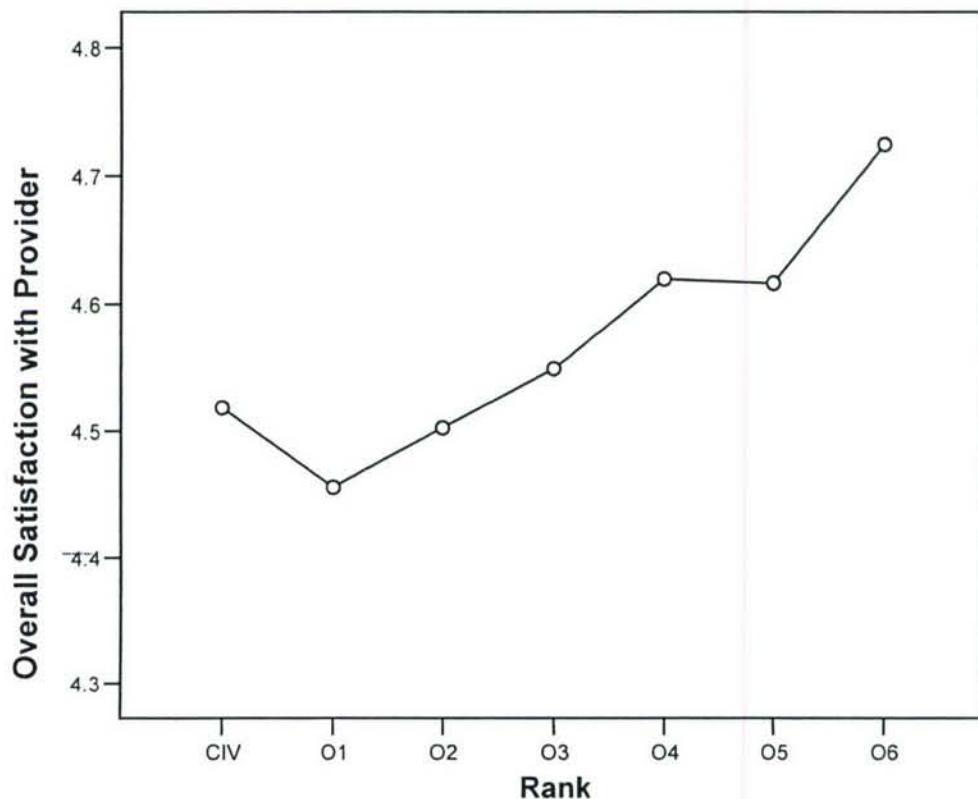
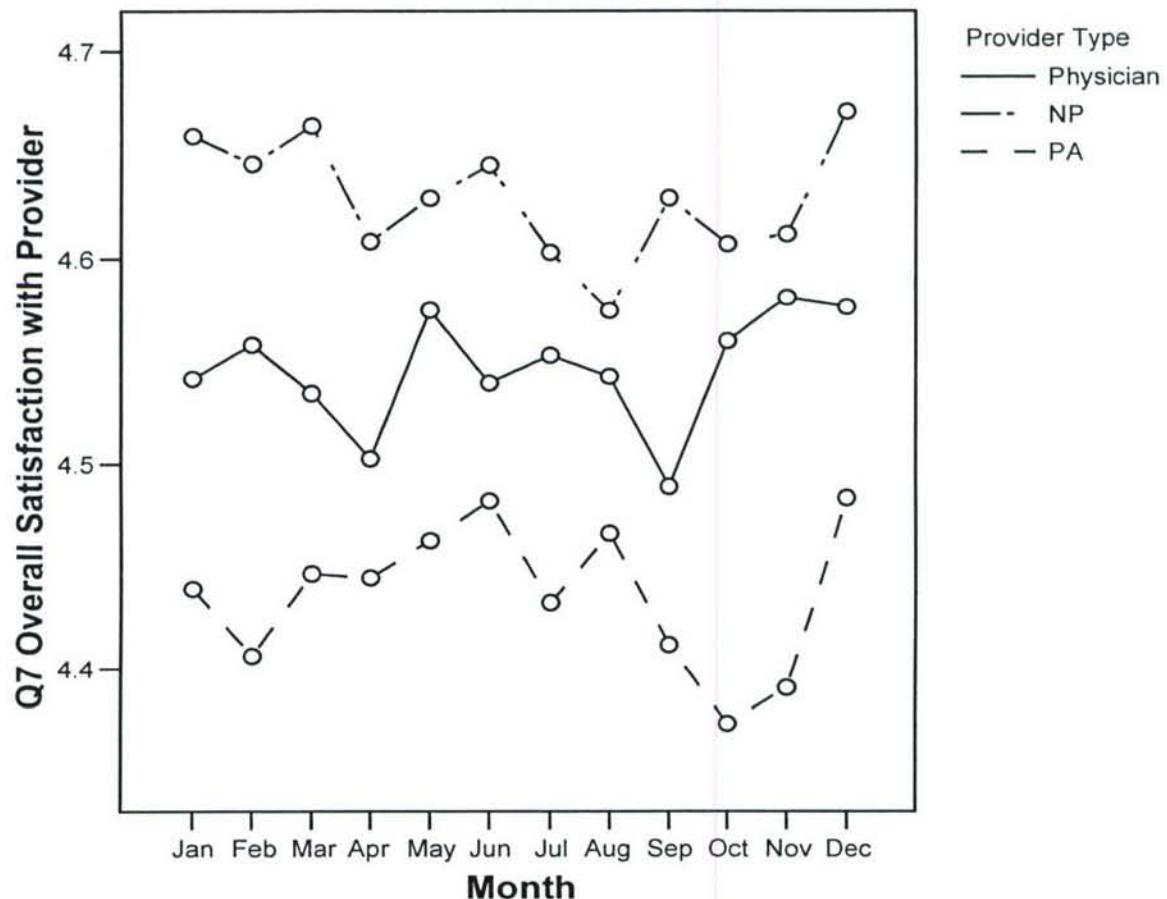
Overall Satisfaction by Rank of Provider

Figure 4
Q7 Overall Satisfaction with Provider



Model 1 inferential statistics are displayed in Table 2. The summary shows the R = .171 with adjusted R-square of .029. The F score of 149.814 indicates statistical significance for predicting patient satisfaction at the .0001 level. Even with this high level of significance the low R square value means that a large part of the shared variance is not accounted for by this model.

Table 2
Inferential Statistics: Model 1 Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.171(a)	.029	.029	.972	.029	149.814	21	103991	.000

a Predictors: (Constant), Rnk_UKN, Age_35to44, Rnk_O6, Rnk_O5, Cat_FM, Qust_MPCM, MedCen, Rnk_O4, Rnk_O1, Rnk_O2, Age_18to24, NP, Rnk_O3, Hosp, Age_65orMore,

Patient_Gender, Age_25to34, PA, Cat_RET, Age_17andBelow, Cat_OTH

b Please see Appendix G SPSS printout for full regression output.

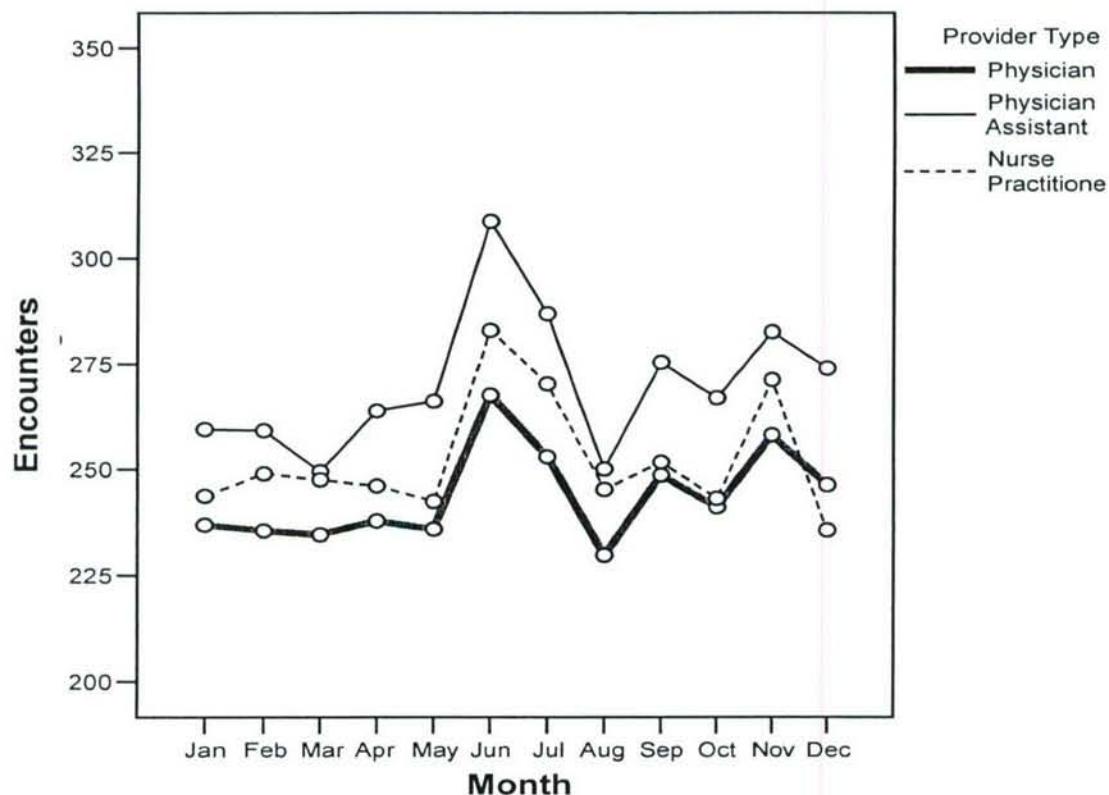
Provider productivity and cost efficiency was analyzed using analysis of variance. In Model 2, productivity was analyzed by the number of encounters per month. In Model 3, productivity was analyzed by RVUs per month. The fourth model used the cost per visit ratio by month. The descriptive statistics for Models 2-4 are shown in Table 3. Physicians had the largest number of providers at 47.5% followed by physician assistants at 38.9% and then nurse practitioners at 13.6% of total cases. Physicians had the lowest mean for encounters per month at 243.98 and physician assistants had the highest at 270.42.

Table 3
Summary Statistics: Encounters, RVUs, and Cost/Visit Ratio by Provider Type

Variable	No. of cases	%	Mean	S.D.
Physicians				
Encounters	9,694	47.5	243.98	100.39
RVUs	9,694	47.5	196.83	45.64
Cost/Visit ratio	9,694	47.5	188.53	81.25
Nurse Practitioners				
Encounters	2784	13.6	252.51	163.44
RVUs	2784	13.6	201.89	114.21
Cost/Visit ratio	2784	13.6	169.45	46.22
Physician Assistants				
Encounters	7943	38.9	270.42	156.24
RVUs	7943	38.9	198.28	113.52
Cost/Visit ratio	7943	38.9	160.64	47.38

Figure 5 shows the mean encounters with respect to the calendar month. The seasonal effects are clearly visible. The summer months of May through August 2004 have a spike in number of encounters for all provider types. November and December have a spike in encounters but not as pronounced as during the summer months. Physicians and nurse practitioners were slightly below the overall mean for encounters during this period.

Figure 5

Model 2: Encounters by Month**Analysis of Variance: Encounters**

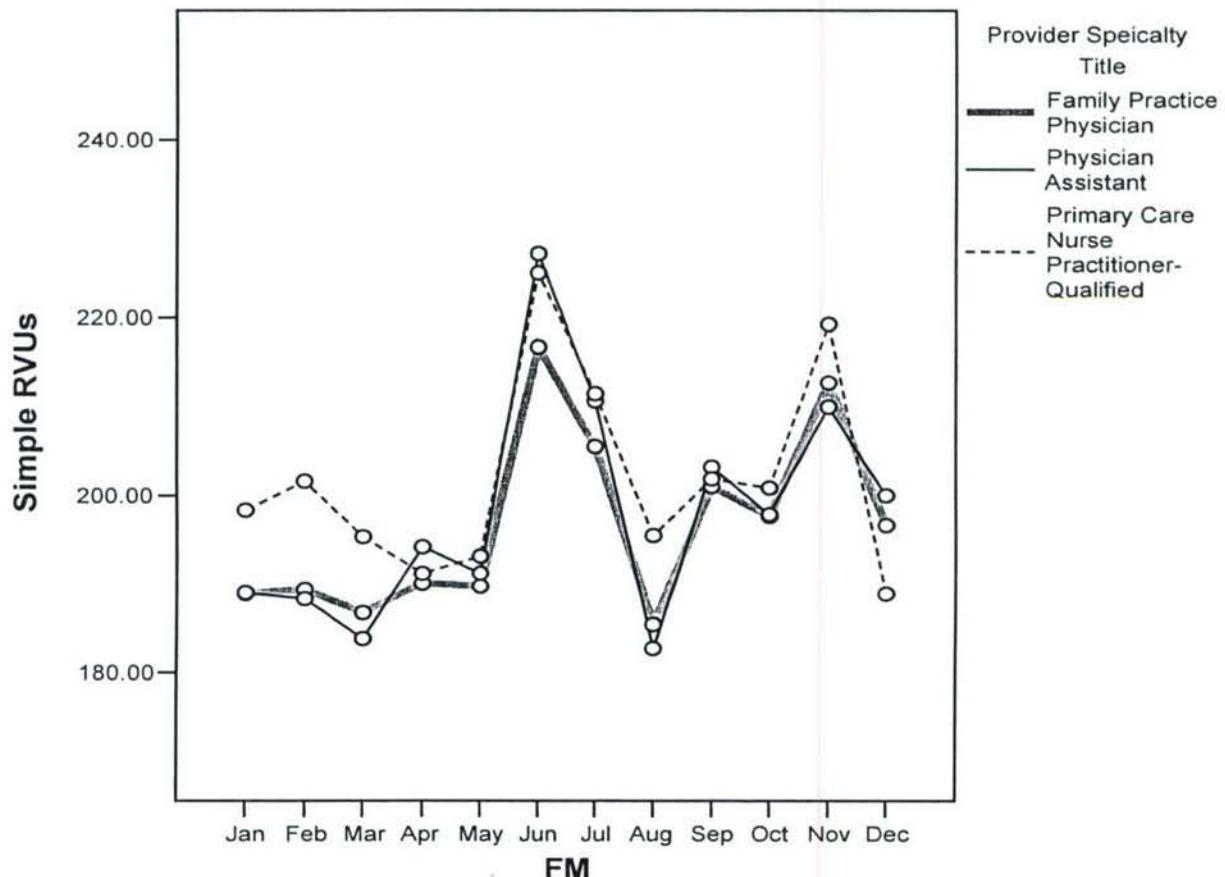
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Model 2	Encounters	3079066.459(a)	2	1539533.230	85.901	.000

a R Squared = .008 (Adjusted R Squared = .008)

In the second model, the mean RVUs were highest with the nurse practitioners at 202.89 with a large standard deviation. Physician assistants were next at 198.28 with a similar standard deviation to the nurse practitioners. The mean for the physicians was slightly lower at 196.83; however, the standard deviation was less than half the nurse practitioner and physician assistant. This may be due to physicians having seen more complicated patients; thus, keeping their average high with minimal variation. The larger standard deviation for the nurse practitioner and physician assistant may mean they saw a wide variety of patients from uncomplicated to complex. The mean RVUs with respect to calendar month are shown in Figure 6. All provider types were closely fit together with the lines overlapping in some places.

Figure 6

Model 3: Simple RVUs by Month



Analysis of Variance: Relative Value Units

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Model 3	Simple_RVU	55881.505(a)	2	27940.752	2.815	.060

a. R Squared = .000 (Adjusted R Squared = .000)

In Model 4, the cost per visit ratio was lowest for physician assistants at \$160.64 and highest for physicians at \$188.53. The standard deviation for the physician was almost double the standard deviation of nurse practitioners and physician assistants. The higher average cost and higher standard deviation

may be explained by the physicians seeing more complicated patients that required more tests and medicines.

Analysis of Variance: Cost per Visit Ratio

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Model 4	Cost per Visit ratio	3499720.301(a)	2	1749860.150	812.582	.000

a R Squared = .074 (Adjusted R Squared = .074)

The analysis of variance shows that Model 2 had an F of 85.901 with a statistical significance of .001 and R square of .008. While statistically significant, the model does not have enough shared variance to be a reliable predictor of encounters. Model 3 did not meet the alpha level of .05 for statistical significance. Model 4 had an F of 812.582 with a statistical significance of less than .001 and R square of .074.

Limitations

The satisfaction survey addresses a recent visit, but did not address the acuity level of the visit. Acuity of the visit was reflected in the RVU score; however, it could not be matched to the same encounter that the satisfaction survey was completed on. The PLPSS was limited to Army facilities which limit the generalizability of the results of the satisfaction component to the other branches of service. In a study by Mangelsdorff and Finstuen (2005), patient satisfaction was found to be homogenous across all branches of service which appears to mitigate this limitation. All branches of service were included in Models 2-4. The shared variance as indicated by R squared value was low for both productivity and patient satisfaction.

Discussion

The purpose of this one year retrospective quantitative study was to determine if the type of provider influences patient satisfaction and if there are differences productivity measures and cost efficiency. The results of this study indicated that there was a statistically significant difference in provider types. Nurse practitioners scored higher on patient satisfaction scores than physicians or physician assistants. This is consistent with other studies in the literature Laurant Et al., (2005). Physician assistants had the highest encounter and RVU levels and the physicians had the lowest. This may be due to inpatient duties that physicians have that nurse practitioners and physician assistants do not have. The provider rank scores indicated that patients were more satisfied with the more experienced providers. This may be the because of a Halo effect with senior providers. The lower satisfaction scores for the civilian providers may be because of the lack of rank devices to distinguish the civilian providers from technicians leading the patient to perceive the provider as a technician. Results from the age group and patient category variables indicated that retired and older patients were more satisfied with the MTF providers than the younger active duty beneficiaries. This is consistent with a previous study by Mangelsdorff and Finstuen (2005).

The new prospective payment system for the military health system provides strong incentives for MTFs to contain cost, increase efficiency and maintain quality health care. Quality healthcare has been previously theorized to include structures, processes and outcomes by Donabedian (1966). Structures

such as provider mix can be manipulated by management decisions to affect outcomes. Important healthcare outcomes that are frequently measured are patient satisfaction and productivity. The findings of this study show that nurse practitioners consistently have higher patient satisfaction scores than physicians or physician assistants. The productivity results show that there is no difference in RVUs among physicians, physician assistants, and nurse practitioners and is consistent with prior studies. In a comparison study by Sullivan-Marx and Maislin (2000), RVUs of nurse practitioners were compared with Physician RVUs and concluded that there were no significant differences in the two provider types. Physician assistants had the highest average number of encounters and the lowest cost per visit ratio. The lower number of encounters seen by nurse practitioners may be explained by increased time spent with the patient. The cost per visit ratio was the best model, based on higher R-squared values and greater significance level, which showed statistically significant differences in the provider types and cost per visit. Difference in training may account for a small amount of the differences in patient satisfaction and productivity.

Conclusions

For Model 1, reject null hypothesis and accept the alternate hypothesis that there is a relationship between provider type and patient satisfaction. Nurse practitioners consistently achieved higher levels of patient satisfaction and this is consistent with other studies. More experienced providers as indicated by rank have higher satisfaction scores. Model 2 had statistical significance but the R-squared was very low at .008. For Model 3, accept the null hypothesis that there

is no difference in provider type and RVUs produced. For Model 4, reject the null hypothesis and accept the alternate hypothesis that there is a difference in provider type and cost per visit. Physician assistants maintain equal levels of RVUs and encounters at a lower cost per visit.

Recommendations

Further studies are needed to include acuity of the patient at the time of the visit and provider experience in years. This study may be useful to the hospital administrator who wishes to increase patient satisfaction, productivity, and cost efficiency by changing the provider type mix; however, these results should applied with caution due to low R-squared value. This study supports retaining experienced clinical staff, nurse practitioners, and physician assistants to achieve high levels of productivity and patient satisfaction.

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Appendix A



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DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
SURVEY PROGRAM OFFICE (SUITE 609)
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258



Please use pen or dark pencil to mark an "X" in the answer box.

Correct	Incorrect
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EXAMPLES:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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Please return your completed questionnaire in the enclosed envelope to, P.O. Box 5033, Chicago, IL 60680.

Army Patient Satisfaction Survey

We need your help. We are trying to improve the quality of care we give our Soldiers and their families.

According to our records you recently had a healthcare visit with Barbara A Yarber on 05/13/2005 at the Wm Beaumont Army Medical Center. Is this correct?

Yes → Please continue with the survey.
 No, saw someone else ... → Please continue with Q9.
 No, didn't have visit → Please stop and return your survey now.

Thinking specifically about your visit with Barbara A Yarber on 05/13/2005 at the Wm Beaumont Army Medical Center, please rate how much you disagree or agree with each of the following. Please mark an "X" in the box for the answer that is closest to your opinion.

	Completely Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Completely Agree
1. This provider, Barbara A Yarber, spent the time with you that your medical problem required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. This provider listened to you carefully about your concerns and questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. This provider understood your problem or condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. This provider treated you with courtesy and respect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. This provider explained what was being done and why	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. This provider helped you with your problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Completely Dissatisfied	Somewhat Dissatisfied	Neither Satisfied nor Dissatisfied	Somewhat Satisfied	Completely Satisfied
7. Overall, how satisfied do you feel about your visit with Barbara A Yarber?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Which of the following best describes your familiarity with Barbara A Yarber?					
This provider is my Primary Care Manager (PCM) whom I see for most of my routine care	<input type="checkbox"/>				
This provider is not my PCM, but I had met or heard of him/her before this visit	<input type="checkbox"/>				
This provider is not my PCM, I had a referral to see this provider	<input type="checkbox"/>				
This provider is not my PCM, and I had never met or heard of him/her before this visit.....	<input type="checkbox"/>				

Please turn over and continue on the back page.

Appendix B

Provider Specialties

ADOLESCENT MEDICINE	2 ADOLESCENT MEDICINE
ADOLESCENT MEDICINE PHYSICIAN	3 ADOLESCENT MEDICINE
PHYSICIAN	
AEROSPACE MED FLIGHT	4 AEROSPACE MED FLIGHT
SURGEON/FAMILY PRACTICE	4 SURGEON/FAMILY PRACTICE
PHYSICIAN	4 PHYSICIAN
AEROSPACE MEDICINE	5 AEROSPACE MEDICINE
AEROSPACE MEDICINE PHYSICIAN	6 AEROSPACE MEDICINE
PHYSICIAN	
ALLERGIST	7 ALLERGIST
ALLERGY	8 ALLERGY
ANESTHESIOLOGIST	9 ANESTHESIOLOGIST
ANESTHESIOLOGY	10 ANESTHESIOLOGY
ANESTHESIOLOGY RESIDENT	11 ANESTHESIOLOGY RESIDENT
AUDIOLOGIST	12 AUDIOLOGIST
AUDIOLOGY	13 AUDIOLOGY
CARDIAC SURGEON	14 CARDIAC SURGEON
CARDIOLOGIST	15 CARDIOLOGIST
CARDIOLOGIST, PEDIATRIC	16 CARDIOLOGIST, PEDIATRIC
CARDIOLOGY	17 CARDIOLOGY
CERTIFIED NURSE MIDWIFE	18 CERTIFIED NURSE MIDWIFE
CLINICAL NURSE - ENTRY LEVEL FOR	19 CLINICAL NURSE - ENTRY
LEVEL FOR	
NURSE PRACTITIONER	19 NURSE PRACTITIONER
CLINICAL PSYCHOLOGIST	20 CLINICAL PSYCHOLOGIST
COLON & RECTAL SURGEON	21 COLON & RECTAL SURGEON
COMMUNITY HEALTH	22 COMMUNITY HEALTH
COMMUNITY HEALTH NURSE	23 COMMUNITY HEALTH NURSE
CONTRACT CHIROPRACTOR	24 CONTRACT CHIROPRACTOR
CONTRACT PHYSICIAN (NOT ON	25 CONTRACT PHYSICIAN (NOT ON
CONSULTANT LIST)	25 CONSULTANT LIST)
CORPSMAN/TECHNICIAN	26 CORPSMAN/TECHNICIAN
CRITICAL CARE MEDICINE	27 CRITICAL CARE MEDICINE
DERMATOLOGIST	28 DERMATOLOGIST
DERMATOLOGIST RESIDENT	29 DERMATOLOGIST RESIDENT
DERMATOLOGY	30 DERMATOLOGY
DIAGNOSTIC RADIOLOGIST	31 DIAGNOSTIC RADIOLOGIST
DIETETICS	32 DIETETICS
DIETICIAN-NUTRITIONIST	33 DIETICIAN-NUTRITIONIST
DRUG ABUSE COUNSELOR	34 DRUG ABUSE COUNSELOR
EMERGENCY MEDICINE	35 EMERGENCY MEDICINE
EMERGENCY PHYSICIAN	36 EMERGENCY PHYSICIAN
EMERGENCY PHYSICIAN RESIDENT	37 EMERGENCY PHYSICIAN
RESIDENT	
ENDOCRINOLOGIST	38 ENDOCRINOLOGIST
ENDOCRINOLOGIST, OB/GYN	39 ENDOCRINOLOGIST, OB/GYN
ENDOCRINOLOGIST, PEDIATRIC	40 ENDOCRINOLOGIST, PEDIATRIC
ENDOCRINOLOGY	41 ENDOCRINOLOGY
FAMILY PRACTICE PHYSICIAN	42 FAMILY PRACTICE PHYSICIAN
FAMILY PRACTICE PHYSICIAN	43 FAMILY PRACTICE PHYSICIAN
RESIDENT	43 RESIDENT

Provider Type 44

FAMILY PRACTICE/PRIMARY CARE CARE	44	FAMILY PRACTICE/PRIMARY
GASTROENTEROLOGIST	45	GASTROENTEROLOGIST
GASTROENTEROLOGIST, PEDIATRIC PEDIATRIC	46	GASTROENTEROLOGIST, PEDIATRIC
—		
GASTROENTEROLOGY	47	GASTROENTEROLOGY
GENERAL MEDICAL OFFICER	48	GENERAL MEDICAL OFFICER
GENERAL MEDICINE	49	GENERAL MEDICINE
GENERAL SURGEON	50	GENERAL SURGEON
GYNECOLOGY	51	GYNECOLOGY
HAND SURGEON	52	HAND SURGEON
HEMATOLOGIST	53	HEMATOLOGIST
HEMATOLOGIST, PEDIATRIC	54	HEMATOLOGIST, PEDIATRIC
HEMATOLOGY	55	HEMATOLOGY
IMMUNOLOGY	56	IMMUNOLOGY
INFECTIOUS DISEASE	57	INFECTIOUS DISEASE
INFECTIOUS DISEASES PHYSICIAN	58	INFECTIOUS DISEASES
PHYSICIAN	59	INFECTIOUS DISEASES
INFECTIOUS DISEASES PHYSICIAN, PHYSICIAN, PEDIATRIC	59	PEDIATRIC
INTERNAL MEDICINE	60	INTERNAL MEDICINE
INTERNAL MEDICINE CONSULTANT CONSULTANT	61	INTERNAL MEDICINE
INTERNAL MEDICINE RESIDENT	62	INTERNAL MEDICINE RESIDENT
INTERNIST	63	INTERNIST
MEDICAL CHEMIST	64	MEDICAL CHEMIST
NEPHROLOGIST	65	NEPHROLOGIST
NEPHROLOGIST, PEDIATRIC	66	NEPHROLOGIST, PEDIATRIC
NEPHROLOGY	67	NEPHROLOGY
NEUROLOGICAL SURGEON	68	NEUROLOGICAL SURGEON
NEUROLOGIST	69	NEUROLOGIST
NEUROLOGIST RESIDENT	70	NEUROLOGIST RESIDENT
NEUROLOGIST, PEDIATRIC	71	NEUROLOGIST, PEDIATRIC
NEUROLOGY	72	NEUROLOGY
NURSE MIDWIFE - ENTRY LEVEL LEVEL	73	NURSE MIDWIFE - ENTRY
NURSE, GENERAL DUTY	74	NURSE, GENERAL DUTY
NURSING	75	NURSING
NUTRITION	76	NUTRITION
OB/GYN	77	OB/GYN
OB/GYN NURSE PRACTITIONER	78	OB/GYN NURSE PRACTITIONER
OB/GYN RESIDENT	79	OB/GYN RESIDENT
OBSTETRICIAN & GYNECOLOGIST GYNECOLOGIST (OB/GYN)	80	OBSTETRICIAN & (OB/GYN)
OBSTETRICS	81	OBSTETRICS
OCCUPATIONAL HEALTH	82	OCCUPATIONAL HEALTH
OCCUPATIONAL MEDICINE PHYSICIAN PHYSICIAN	83	OCCUPATIONAL MEDICINE
OCCUPATIONAL THERAPIST	84	OCCUPATIONAL THERAPIST
ONCOLOGIST	85	ONCOLOGIST
ONCOLOGY	86	ONCOLOGY
OPHTHALMOLOGIST	87	OPHTHALMOLOGIST

Provider Type 45

OPHTHALMOLOGY	88	OPHTHALMOLOGY
OPHTHALMOLOGY RESIDENT	89	OPHTHALMOLOGY RESIDENT
OPTOMETRIST	90	OPTOMETRIST
OPTOMETRY	91	OPTOMETRY
ORTHOPEDIC RESIDENT	92	ORTHOPEDIC RESIDENT
ORTHOPEDIC SURGEON	93	ORTHOPEDIC SURGEON
ORTHOPEDICS	94	ORTHOPEDICS
OTHER BIOMEDICAL SPECIALIST	95	OTHER BIOMEDICAL
SPECIALIST		
OTHER CONSULTANT	96	OTHER CONSULTANT
OTHER PROVIDER (OFFICER)	97	OTHER PROVIDER (OFFICER)

OTORHINOLARYNGOLOGIST	98	OTORHINOLARYNGOLOGIST
OTORHINOLARYNGOLOGY	99	OTORHINOLARYNGOLOGY
OTORHINOLARYNGOLOGY RESIDENT	100	OTORHINOLARYNGOLOGY
RESIDENT		
PEDIATRIC MEDICINE CONSULTANT	101	PEDIATRIC MEDICINE
CONSULTANT		
PEDIATRIC NURSE PRACTITIONER	102	PEDIATRIC NURSE
PRACTITIONER		
PEDIATRIC RESIDENT	103	PEDIATRIC RESIDENT
PEDIATRIC SURGEON	104	PEDIATRIC SURGEON
PEDIATRICIAN	105	PEDIATRICIAN
PEDIATRICS	106	PEDIATRICS
PEDIATRICS, DEVELOPMENTAL	107	PEDIATRICS, DEVELOPMENTAL
PERINATOLOGIST	108	PERINATOLOGIST
PERIPHERAL VASCULAR SURGEON	109	PERIPHERAL VASCULAR
SURGEON		
PHYSICAL MEDICINE &	110	PHYSICAL MEDICINE &
REHABILITATION	110	REHABILITATION
PHYSICAL MEDICINE PHYSICIAN	111	PHYSICAL MEDICINE
PHYSICIAN		
PHYSICAL THERAPIST	112	PHYSICAL THERAPIST
PHYSICIAN ASSISTANT	113	PHYSICIAN ASSISTANT
PLASTIC SURGEON	114	PLASTIC SURGEON
PLASTIC SURGERY RESIDENT	115	PLASTIC SURGERY RESIDENT
PODIATRIST	116	PODIATRIST
PODIATRY	117	PODIATRY
PREVENTIVE MEDICINE	118	PREVENTIVE MEDICINE
PREVENTIVE MEDICINE PHYSICIAN	119	PREVENTIVE MEDICINE
PHYSICIAN		
PRIMARY CARE NURSE PRACTITIONER	120	PRIMARY CARE NURSE
PRACTITIONER		
- ENTRY	120	- ENTRY
PRIMARY CARE NURSE PRACTITIONER	121	PRIMARY CARE NURSE
PRACTITIONER		
QUALIFIED	121	QUALIFIED
PROCTOLOGY	122	PROCTOLOGY
PSYCHIATRIST	123	PSYCHIATRIST
PSYCHIATRY	124	PSYCHIATRY
PSYCHOLOGY	125	PSYCHOLOGY
PSYCHOLOGY SOCIAL WORKER	126	PSYCHOLOGY SOCIAL WORKER
PULMONARY DISEASE	127	PULMONARY DISEASE
PULMONARY DISEASES PHYSICIAN	128	PULMONARY DISEASES
PHYSICIAN		

Provider Type 46

PULMONARY DISEASES PHYSICIAN,	129	PULMONARY DISEASES
PHYSICIAN,		
PEDIATRIC	129	PEDIATRIC
RADIATION THERAPIST	130	RADIATION THERAPIST
RADIOLOGIST	131	RADIOLOGIST
RADIOLOGY	132	RADIOLOGY
RADIOLOGY RESIDENT	133	RADIOLOGY RESIDENT
RESIDENT SURGEON	134	RESIDENT SURGEON
RHEUMATOLOGIST	135	RHEUMATOLOGIST
RHEUMATOLOGY	136	RHEUMATOLOGY
SLEEP DISORDERS	137	SLEEP DISORDERS
SPEECH THERAPIST	138	SPEECH THERAPIST
SURGERY	139	SURGERY
SURGERY CONSULTANT	140	SURGERY CONSULTANT
THERAPY, OCCUPATIONAL	141	THERAPY, OCCUPATIONAL
THERAPY, PHYSICAL	142	THERAPY, PHYSICAL
THORACIC SURGEON	143	THORACIC SURGEON
THORACIC SURGERY	144	THORACIC SURGERY
UNKNOWN	145	UNKNOWN
UROLOGIST	146	UROLOGIST
UROLOGY	147	UROLOGY
UROLOGY CONSULTANT	148	UROLOGY CONSULTANT
UROLOGY RESIDENT	149	UROLOGY RESIDENT

Appendix C

Provider Class

ADMIN-NURSE	1 ADMIN-NURSE
ADULT NURSE PRAC	2 ADULT NURSE PRAC
ADVANCED ALLIED	3 ADVANCED ALLIED
ALLERGIST	4 ALLERGIST
ANESTHESIA RESIDENT	5 ANESTHESIA RESIDENT
ANESTHESIOLOGIST	6 ANESTHESIOLOGIST
AUDIOLOGIST	7 AUDIOLOGIST
AUDIOLOGIST 2Z	8 AUDIOLOGIST 2Z
AUDIOLOGY TECH	9 AUDIOLOGY TECH
BAMC CORPSMAN/TECHNICIAN	10 BAMC CORPSMAN/TECHNICIAN
BAMC PA AND NP	11 BAMC PA AND NP
BAMC RESIDENT/FELLOW	12 BAMC RESIDENT/FELLOW
CARDIOLOGIST	13 CARDIOLOGIST
CARDIOLOGY FELLOW	14 CARDIOLOGY FELLOW
CARDIOTHORACIC SURGEON	15 CARDIOTHORACIC SURGEON
CASE MANAGER	16 CASE MANAGER
CERTIFIED NURSE MIDWIFE	17 CERTIFIED NURSE MIDWIFE
CERTIFIED NURSING ASSISTANT	18 CERTIFIED NURSING ASSISTANT
CHIROPRACTOR	19 CHIROPRACTOR
CLERK	20 CLERK
CLIN VISIT	21 CLIN VISIT
CLINICAL CLERK	22 CLINICAL CLERK
CLINICAL DIETICIAN	23 CLINICAL DIETICIAN
CLINICAL NURSE	24 CLINICAL NURSE
CLINICAL NURSE SPECIALIST	25 CLINICAL NURSE SPECIALIST
CLINICAL PHARMACIST	26 CLINICAL PHARMACIST
COMMUNITY HEALTH NURSE	27 COMMUNITY HEALTH NURSE
CONTRACT CHIROPRACTOR	28 CONTRACT CHIROPRACTOR
CONTRACT PEDIATRICIAN	29 CONTRACT PEDIATRICIAN
CONTRACT/PAR	30 CONTRACT/PAR
COUNTER SIGNING PHYSICIAN	31 COUNTER SIGNING PHYSICIAN
DEPLOYED PA	32 DEPLOYED PA
DEPLOYED PHYSICIAN	33 DEPLOYED PHYSICIAN
DERMATOLOGIST	34 DERMATOLOGIST
DERMATOLOGY RESIDENT	35 DERMATOLOGY RESIDENT
DIET TECHNICIAN	36 DIET TECHNICIAN
DIETICIAN	37 DIETICIAN
DIETICIAN 2Z	38 DIETICIAN 2Z
DIETICIAN FE	39 DIETICIAN FE
DIETITIAN	40 DIETITIAN
DIETITIAN CREDENTIALED	41 DIETITIAN CREDENTIALED
DO	42 DO
EMER MED PHYSICIAN ASSISTANT	43 EMER MED PHYSICIAN ASSISTANT
EMERGENCY MEDICINE PHYSICIAN	44 EMERGENCY MEDICINE PHYSICIAN
EMERGENCY PHYSICIAN	45 EMERGENCY PHYSICIAN
ENDOCRINOLOGIST	46 ENDOCRINOLOGIST
ENT RESIDENT	47 ENT RESIDENT
ER MEDICINE RESIDENT	48 ER MEDICINE RESIDENT
FAMILY NURSE PRAC	49 FAMILY NURSE PRAC
FAMILY NURSE PRACTITIONER	50 FAMILY NURSE PRACTITIONER

FAMILY PHYSICIAN	51	FAMILY PHYSICIAN
FAMILY PRACTICE INTERN	52	FAMILY PRACTICE INTERN
FAMILY PRACTICE PHYSICIAN	53	FAMILY PRACTICE PHYSICIAN
FAMILY PRACTICE PHYSICIAN EVAN	54	FAMILY PRACTICE PHYSICIAN
EVAN		
FAMILY PRACTICE RESIDENT	55	FAMILY PRACTICE RESIDENT
FAMILY PRACTITIONER	56	FAMILY PRACTITIONER
FELLOW	57	FELLOW
FLIGHT SURGEON	58	FLIGHT SURGEON
FP NURSE PRACTITIONER	59	FP NURSE PRACTITIONER
GASTROENTEROLOGIST	60	GASTROENTEROLOGIST
GASTROENTEROLOGY FELLOW	61	GASTROENTEROLOGY FELLOW
GASTROENTEROLOGY RESIDENT	62	GASTROENTEROLOGY RESIDENT
GEN SURG	63	GEN SURG
GENERAL MEDICAL OFFICER	64	GENERAL MEDICAL OFFICER
GENERAL PHYSICIAN	65	GENERAL PHYSICIAN
GENERAL SURGEON	66	GENERAL SURGEON
GENERAL SURGERY	67	GENERAL SURGERY
GENERAL SURGERY RESIDENT	68	GENERAL SURGERY RESIDENT
GYNECOLOGIST	69	GYNECOLOGIST
HCP	70	HCP
HEAD NURSE	71	HEAD NURSE
HEALTH SERVICES TECHNICIAN	72	HEALTH SERVICES TECHNICIAN
HEALTH TECHNICIAN 4Z	73	HEALTH TECHNICIAN 4Z
HEM/ONC FELLOW	74	HEM/ONC FELLOW
HEMATOLOGIST/ONCOLOGIST	75	HEMATOLOGIST/ONCOLOGIST
INFECTIOUS DISEASE SPECIALIST	76	INFECTIOUS DISEASE
SPECIALIST		
INTERN	77	INTERN
INTERNAL MEDICINE	78	INTERNAL MEDICINE
INTERNAL MEDICINE RESIDENT	79	INTERNAL MEDICINE RESIDENT
INTERNIST	80	INTERNIST
INTERNIST/PEDIATRICIAN	81	INTERNIST/PEDIATRICIAN
LICENSED PRACTICAL NURSE	82	LICENSED PRACTICAL NURSE
LICENSED PRACTICAL NURSE 4L	83	LICENSED PRACTICAL NURSE 4L
LPN	84	LPN
LVN (STANDARD)	85	LVN (STANDARD)
LVN SPECIAL	86	LVN SPECIAL
LVN/LPN/91C	87	LVN/LPN/91C
MAMC_AUDIOLOGIST	88	MAMC_AUDIOLOGIST
MCP NETWORK PROVIDER	89	MCP NETWORK PROVIDER
MED NURSE PRACTITIONER	90	MED NURSE PRACTITIONER
MEDICAL CLERK	91	MEDICAL CLERK
MEDICAL CLERK 5C	92	MEDICAL CLERK 5C
MEDICAL SPECIALIST	93	MEDICAL SPECIALIST
MEDICAL STUDENT 1Z	94	MEDICAL STUDENT 1Z
MEDICAL TECHNICIAN	95	MEDICAL TECHNICIAN
MEDICINE INTERN	96	MEDICINE INTERN
MEDICINE RESIDENT	97	MEDICINE RESIDENT
NA/MED SPECIALIST/91B	98	NA/MED SPECIALIST/91B
NEPHROLOGIST	99	NEPHROLOGIST
NEUROLOGIST	100	NEUROLOGIST
NEUROSURGEON	101	NEUROSURGEON
NURSE	102	NURSE
NURSE ASSISTANT	103	NURSE ASSISTANT

NURSE CONSULTANT	104	NURSE CONSULTANT
NURSE MIDWIFE	105	NURSE MIDWIFE
NURSE MIDWIFE 2M	106	NURSE MIDWIFE 2M
NURSE PRACTITIONER	107	NURSE PRACTITIONER
NURSE PRACTITIONER	108	NURSE PRACTITIONER
NURSE PRACTITIONER 2N	109	NURSE PRACTITIONER 2N
NURSE, LPN	110	NURSE, LPN
NURSE, RN	111	NURSE, RN
NURSING ASSISTANT	112	NURSING ASSISTANT
NURSING ASSISTANT 4A	113	NURSING ASSISTANT 4A
NUTRITIONIST	114	NUTRITIONIST
OB NURSE PRACTITIONER	115	OB NURSE PRACTITIONER
OB/GYN	116	OB/GYN
OB/GYN INTERN	117	OB/GYN INTERN
OB/GYN NURSE PRAC	118	OB/GYN NURSE PRAC
OB/GYN NURSE PRACT	119	OB/GYN NURSE PRACT
OB/GYN RESIDENT	120	OB/GYN RESIDENT
OBSTETRICIAN/GYNECOLOGIST	121	OBSTETRICIAN/GYNECOLOGIST
OBSTETRICS & GYNECOLOGY	122	OBSTETRICS & GYNECOLOGY
OCC HLTH TECH	123	OCC HLTH TECH
OCCUPATIONAL HEALTH NURSE	124	OCCUPATIONAL HEALTH NURSE
OCCUPATIONAL THERAPIST-MSE	125	OCCUPATIONAL THERAPIST-MSE
OCCUPATIONAL THERAPIST	126	OCCUPATIONAL THERAPIST
OCCUPATIONAL THERAPIST CRED	127	OCCUPATIONAL THERAPIST CRED
ONCOLOGIST	128	ONCOLOGIST
OPHTHALMOLOGIST	129	OPHTHALMOLOGIST
OPHTHALMOLOGIST	130	OPHTHALMOLOGIST
OPHTHALMOLOGY	131	OPHTHALMOLOGY
OPTOMETRIST	132	OPTOMETRIST
OPTOMETRIST 2Z	133	OPTOMETRIST 2Z
OPTOMETRY	134	OPTOMETRY
OPTOMETRY TECH	135	OPTOMETRY TECH
ORDERING CLERK	136	ORDERING CLERK
ORTHOPAEDIC SURGEON	137	ORTHOPAEDIC SURGEON
ORTHOPEDIC	138	ORTHOPEDIC
ORTHOPEDIC INTERN	139	ORTHOPEDIC INTERN
ORTHOPEDIC SURGEON	140	ORTHOPEDIC SURGEON
ORTHOPEDICS RESIDENT	141	ORTHOPEDICS RESIDENT
OSTEOPATH	142	OSTEOPATH
OT INTERN	143	OT INTERN
OTOLARYNGOLOGIST	144	OTOLARYNGOLOGIST
OTOLARYNGOLOGY	145	OTOLARYNGOLOGY
OTOLARYNGOLOGY RESIDENT	146	OTOLARYNGOLOGY RESIDENT
OTORHINOLARYNGOLOGIST	147	OTORHINOLARYNGOLOGIST
OUTSIDE PROVIDER	148	OUTSIDE PROVIDER
PC NURSE PRACTITIONER	149	PC NURSE PRACTITIONER
PEDIATRIC	150	PEDIATRIC
PEDIATRIC NURSE PRAC	151	PEDIATRIC NURSE PRAC
PEDIATRIC NURSE PRACTITIONER	152	PEDIATRIC NURSE PRACTITIONER
PEDIATRIC RESIDENT	153	PEDIATRIC RESIDENT
PEDIATRICIAN	154	PEDIATRICIAN
PEDIATRICS INTERN	155	PEDIATRICS INTERN
PEDIATRICS RESIDENT	156	PEDIATRICS RESIDENT

PHARM-D	157	PHARM-D
PHARMACIST	158	PHARMACIST
PHARMACIST 2Z	159	PHARMACIST 2Z
PHYSIATRIST	160	PHYSIATRIST
PHYSICAL MEDICINE	161	PHYSICAL MEDICINE
PHYSICAL THERAPIST-HCP	162	PHYSICAL THERAPIST-HCP
PHYSICAL THERAPIST - HCP	163	PHYSICAL THERAPIST - HCP
PHYSICAL THERAPIST	164	PHYSICAL THERAPIST
PHYSICAL THERAPIST + EXTRA	165	PHYSICAL THERAPIST + EXTRA
PHYSICAL THERAPIST 2Z	166	PHYSICAL THERAPIST 2Z
PHYSICAL THERAPIST ASSISTANT	167	PHYSICAL THERAPIST ASSISTANT
PHYSICAL THERAPY ASSISTANT	168	PHYSICAL THERAPY ASSISTANT
PHYSICAL THERAPY TECH	169	PHYSICAL THERAPY TECH
PHYSICIAN	170	PHYSICIAN
PHYSICIAN ASSISTANT	171	PHYSICIAN ASSISTANT
PHYSICIAN ASSISTANT 2Z	172	PHYSICIAN ASSISTANT 2Z
PHYSICIAN ASSISTANT RESIDENT	173	PHYSICIAN ASSISTANT RESIDENT
PHYSICIAN DO	174	PHYSICIAN DO
PHYSICIAN FELLOW 1F	175	PHYSICIAN FELLOW 1F
PHYSICIAN INTERN 1N	176	PHYSICIAN INTERN 1N
PHYSICIAN MD	177	PHYSICIAN MD
PHYSICIAN RESIDENT 1R	178	PHYSICIAN RESIDENT 1R
PHYSICIAN STAFF 1P	179	PHYSICIAN STAFF 1P
PLASTIC SURGEON	180	PLASTIC SURGEON
PODIATRIST	181	PODIATRIST
PODIATRIST	182	PODIATRIST
PODIATRIST 2Z	183	PODIATRIST 2Z
PRACTICAL NURSE	184	PRACTICAL NURSE
PRI CARE NURSE PRACTITIONER	185	PRI CARE NURSE PRACTITIONER
PRIVILEGED CLERK	186	PRIVILEGED CLERK
PRIVILEGED NURSE	187	PRIVILEGED NURSE
PROVIDER	188	PROVIDER
PSYCHIATRY RESIDENT	189	PSYCHIATRY RESIDENT
PSYCHOLOGIST	190	PSYCHOLOGIST
PSYCHOLOGIST 2Z	191	PSYCHOLOGIST 2Z
PT TECH	192	PT TECH
PULMONARY FELLOW	193	PULMONARY FELLOW
PULMONOLOGIST	194	PULMONOLOGIST
RADIOLOGIST	195	RADIOLOGIST
RADIOLOGIST 1P	196	RADIOLOGIST 1P
REGISTERED DIETITIANS	197	REGISTERED DIETITIANS
REGISTERED NURSE	198	REGISTERED NURSE
REGISTERED NURSE (RN)	199	REGISTERED NURSE (RN)
REGISTERED NURSE 3R	200	REGISTERED NURSE 3R
RESIDENT	201	RESIDENT
RESIDENT PHYSICIAN	202	RESIDENT PHYSICIAN
RHEUMATOLOGIST	203	RHEUMATOLOGIST
RN	204	RN
SONOGRAPHER	205	SONOGRAPHER
SPECIAL CLASS (DOCTOR)	206	SPECIAL CLASS (DOCTOR)
SPECIAL CLASS (NURSE)	207	SPECIAL CLASS (NURSE)
SPECIAL CLASS OPTOMETRIST	208	SPECIAL CLASS OPTOMETRIST
SPEECH PATHOLOGIST	209	SPEECH PATHOLOGIST

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SPEECH PATHOLOGY	210	SPEECH PATHOLOGY
SPEECH THERAPIST	211	SPEECH THERAPIST
STAFF ANESTHESIOLOGIST	212	STAFF ANESTHESIOLOGIST
STAFF AUDIOLOGY & SPEECH	213	STAFF AUDIOLOGY & SPEECH
STAFF CARDIOLOGIST	214	STAFF CARDIOLOGIST
STAFF CARDIOTHORACIC SURGEON	215	STAFF CARDIOTHORACIC SURGEON
STAFF DERMATOLOGIST	216	STAFF DERMATOLOGIST
STAFF ENDOCRINOLOGIST	217	STAFF ENDOCRINOLOGIST
STAFF ER MED PHYSICIAN	218	STAFF ER MED PHYSICIAN
STAFF FAM PRACTICE PHYSICIAN	219	STAFF FAM PRACTICE PHYSICIAN
STAFF GASTROENTEROLOGIST	220	STAFF GASTROENTEROLOGIST
STAFF GENERAL SURGEON	221	STAFF GENERAL SURGEON
STAFF HEM/ONC	222	STAFF HEM/ONC
STAFF INFECTIOUS DISEASE DR	223	STAFF INFECTIOUS DISEASE DR
STAFF INTERNIST	224	STAFF INTERNIST
STAFF NURSE PRACTITIONER	225	STAFF NURSE PRACTITIONER
STAFF OB/GYN PHYSICIAN	226	STAFF OB/GYN PHYSICIAN
STAFF OCCUPATIONAL THERAPIST	227	STAFF OCCUPATIONAL THERAPIST
STAFF OPHTHALMOLOGIST	228	STAFF OPHTHALMOLOGIST
STAFF ORTHOPAEDIC SURGEON	229	STAFF ORTHOPAEDIC SURGEON
STAFF PEDIATRICIAN	230	STAFF PEDIATRICIAN
STAFF PHYSICAL THERAPIST	231	STAFF PHYSICAL THERAPIST
STAFF PHYSICIAN	232	STAFF PHYSICIAN
STAFF PHYSICIAN ASSISTANT	233	STAFF PHYSICIAN ASSISTANT
STAFF PULMONOLOGIST	234	STAFF PULMONOLOGIST
STAFF RADIATION THERAPIST	235	STAFF RADIATION THERAPIST
STAFF RADIOLOGIST	236	STAFF RADIOLOGIST
STAFF RHEUMATOLOGIST	237	STAFF RHEUMATOLOGIST
STAFF UROLOGIST	238	STAFF UROLOGIST
SURGEON	239	SURGEON
SURGERY INTERN	240	SURGERY INTERN
SURGERY RESIDENT	241	SURGERY RESIDENT
TECHNICIAN	242	TECHNICIAN
TECHNOLOGIST 2Z	243	TECHNOLOGIST 2Z
TMC PHYSICIAN ASSISTANT	244	TMC PHYSICIAN ASSISTANT
TRANSITIONAL INTERN	245	TRANSITIONAL INTERN
TRIAGE NURSE	246	TRIAGE NURSE
UROLOGIST	247	UROLOGIST
UROLOGY RESIDENT	248	UROLOGY RESIDENT
UTHSC RESIDENT	249	UTHSC RESIDENT
VASCULAR SURGEON	250	VASCULAR SURGEON
VOLUNTEER PHYSICIAN	251	VOLUNTEER PHYSICIAN
WARD CLERK	252	WARD CLERK
ZZPHYSICIAN	253	ZZPHYSICIAN

Appendix D

SPSS Syntax

The cases contain the date of birth and date of appointment. The date of birth variable is labeled "pat_dob" and date of appointment is labeled "apptdate". The date of birth is subtracted from the date of appointment to get age at time of appointment. The "Age" variable can then be recoded into age group categories and code 1 if present, 0 otherwise.

1. COMPUTE YRMODA(XDATE.YEAR(pat_dob), XDATE.MONTH(pat_dob), XDATE.DAY(pat_dob)) into target variable "Birthdate".
2. COMPUTE YRMODA(XDATE.YEAR(apptdate), XDATE.MONTH(apptdate), XDATE.DAY(apptdate)) into target variable "Appt_date".
3. COMPUTE (Appt_date - Birthdate) / 365 into target variable "Age"
4. RECODE Age (0 THRU 17 = 1) (else = 0) INTO Age_17andBelow.
RECODE Age (18 THRU 25 =1) (else =0) INTO Age_18-24.
RECODE Age (26 THRU 35 =1) (else = 0) INTO Age_25-34.
RECODE Age (36THRU 45 =1) (else = 0) INTO Age_35-44.
RECODE Age (46 THRU 64 =1) (else = 0) INTO Age_45-64.
RECODE Age (65 THRU HI = 1) (else = 0) INTO Age_65orMore.

The variable "prov_rnk" was recoded into two variables Civilian_Prov and Mil_Prov to indicate if provider was military or civilian and Miliary rank was coded into separate rank variable 01 thru 06 and Civ. In 459 cases the rank was unkown, so these were excluded.

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RECODE prov_rnk (ACIV =1) (FCIV =1) (NCIV=1) (XCIV=1) (ELSE=0) INTO
Mil_Prov

Appendix E

Patient Categories

Old Value	New Value	Value Label
ARMY SECT DESIGNEE (FMR PAY) PAY)	2	ARMY SECT DESIGNEE (FMR
ARMY SECT DESIGNEE (FRR PAY) PAY)	3	ARMY SECT DESIGNEE (FRR
ARMY SECT DESIGNEE (NO PAY) PAY)	4	ARMY SECT DESIGNEE (NO
CIV EMPL/OTH FED AGEN/NON-DOD, DOD, NEC	5	CIV EMPL/OTH FED AGEN/NON-
CIV EMPLOYEE ARMY NATL GUARD GUARD	5	NEC
CIV FACULTY U OF HEALTH SCIENCES SCIENCES	6	CIV EMPLOYEE ARMY NATL
CIVILIAN - DISASTER (FEMA)	7	CIV FACULTY U OF HEALTH
CIVILIAN - HUMANITARIAN	8	CIVILIAN - DISASTER (FEMA)
CIVILIAN EMERGENCY CARE	9	CIVILIAN - HUMANITARIAN
COMMERCE DEPT EMPLOYEE	10	CIVILIAN EMERGENCY CARE
CONTRACT EMPLOYEE AND FAM MBR MBR	11	COMMERCE DEPT EMPLOYEE
DOD EMPL OCCUPATIONAL HEALTH HEALTH	12	CONTRACT EMPLOYEE AND FAM
DOD EMPLOYEE REMOTE AREA IN US IN US	13	DOD EMPL OCCUPATIONAL
DOD SCHOOL TEACHER OUTSIDE THE THE US	14	DOD EMPLOYEE REMOTE AREA
DOD/VA SHARING AGREEMENT	15	DOD SCHOOL TEACHER OUTSIDE
EMERGENCY CARE	15	US
EXCHANGE EMP OCONUS	16	DOD/VA SHARING AGREEMENT
FAA AIR TRF CONTROLLER PHYS EXAM PHYS EXAM	17	EMERGENCY CARE
FAM MBR COMM DEPT EMPL, BUR PUB BUR PUB	18	EXCHANGE EMP OCONUS
RDS	19	FAA AIR TRF CONTROLLER
FAM MBR DOD SCHL TEACHR OUTSIDE OUTSIDE US	20	FAM MBR COMM DEPT EMPL,
FAM MBR EXCHANGE EMP OCONUS OCONUS	20	RDS
FAM MBR FED EMPLYE ALCH AND DRUG AND DRUG	21	FAM MBR DOD SCHL TEACHR
RE	21	US
FAM MBR NON-DOD FED AGENCY	22	FAM MBR EXCHANGE EMP
FAM MBR OTHER DOD EMPL OUTSIDE OUTSIDE US	23	FAM MBR FED EMPLYE ALCH
FED EMPLOYEE ALCH AND DRUG REHAB REHAB	23	RE
FED GOVT EMPLOYEE IN REMOTE REMOTE	24	FAM MBR NON-DOD FED AGENCY
	25	FAM MBR OTHER DOD EMPL
	25	US
	26	FED EMPLOYEE ALCH AND DRUG
	27	FED GOVT EMPLOYEE IN

AREAS	27 AREAS
FMS NATO - ITO AGENCY	28 FMS NATO - ITO AGENCY
FMS NATO - ITO INDIVIDUAL	29 FMS NATO - ITO INDIVIDUAL
FMS NATO CIVILIAN - ITO AGENCY	30 FMS NATO CIVILIAN - ITO
AGENCY	
FMS NON-NATO MIL/CIV - ITO	31 FMS NON-NATO MIL/CIV - ITO
AGENCY	31 AGENCY
FMS NON-NATO MIL/CIV - ITO IND	32 FMS NON-NATO MIL/CIV - ITO
IND	
FOREIGN CIVILIAN	33 FOREIGN CIVILIAN
GSA EMPLOYEE	34 GSA EMPLOYEE
GUANTANAMO BAY	35 GUANTANAMO BAY
IMET NATO	36 IMET NATO
IMET NON-NATO MILITARY/CIVILIAN	37 IMET NON-NATO
MILITARY/CIVILIAN	
JUSTICE DEPT EMPLOYEE	38 JUSTICE DEPT EMPLOYEE
KATUSA	39 KATUSA
MERCHANT MARINE ACAD APPLICANT	40 MERCHANT MARINE ACAD
APPLICANT	
NAF EMPLOYEE OCONUS	41 NAF EMPLOYEE OCONUS
NATO FAM MBR-CONUS	42 NATO FAM MBR-CONUS
NATO FAM MBR-OCONUS	43 NATO FAM MBR-OCONUS
 -	
NATO FAM MBR IMET/FMS - ITO	44 NATO FAM MBR IMET/FMS -
ITO	
AGENCY	44 AGENCY
NATO FAM MBR IMET/FMS - ITO IND	45 NATO FAM MBR IMET/FMS -
ITO IND	
NATO MILITARY-CONUS	46 NATO MILITARY-CONUS
NATO MILITARY-OCONUS	47 NATO MILITARY-OCONUS
NATO RECIP AGREE - FAM MBR	48 NATO RECIP AGREE - FAM MBR
NATO RECIP AGREE	49 NATO RECIP AGREE
NOAA ACTIVE DUTY	50 NOAA ACTIVE DUTY
NOAA FAM MBR AD	51 NOAA FAM MBR AD
NOAA FAM MBR DECEASED AD	52 NOAA FAM MBR DECEASED AD
NOAA FAM MBR DECEASED RETIRED	53 NOAA FAM MBR DECEASED
RETIRED	
NOAA FAM MBR RET	54 NOAA FAM MBR RET
NOAA RET LOS	55 NOAA RET LOS
NOAA RET TDRL	56 NOAA RET TDRL
NOAA UNREMARRIED FRM SPOUSE	57 NOAA UNREMARRIED FRM
SPOUSE	
NON-NATO FAM MBR IMET/FMS - ITO	58 NON-NATO FAM MBR IMET/FMS
- ITO	
AGN	58 AGN
NON-NATO FAM MBR IMET/FMS - ITO	59 NON-NATO FAM MBR IMET/FMS
- ITO	
IND	59 IND
NON-NATO FAM MBR OF OTHER	60 NON-NATO FAM MBR OF OTHER
MILITARY	60 MILITARY
NON-NATO RECIP AGREE - FAM MBR	61 NON-NATO RECIP AGREE - FAM
MBR	
NON-NATO RECIP AGREE	62 NON-NATO RECIP AGREE
OTHER DOD EMPLOYEE OUTSIDE THE	63 OTHER DOD EMPLOYEE OUTSIDE
THE	

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US	63 US
OTHER FEDERAL AGENCY/DEPT	64 OTHER FEDERAL AGENCY/DEPT
OTHER NON-NATO MILITARY	65 OTHER NON-NATO MILITARY
PAC ISLAND NAT: KOSRAE	66 PAC ISLAND NAT: KOSRAE
PAC ISLAND NAT: MARSHALL ISLANDS	67 PAC ISLAND NAT: MARSHALL
ISLANDS	
PAC ISLAND NAT: PALAU	68 PAC ISLAND NAT: PALAU
PAC ISLAND NAT: PONAPE	69 PAC ISLAND NAT: PONAPE
PAC ISLAND NAT: YAP	70 PAC ISLAND NAT: YAP
PATIENT NOT ELSEWHERE CLASSIFIED	71 PATIENT NOT ELSEWHERE
CLASSIFIED	
PEACE CORP VOL, VOL LDR AND EMPL	72 PEACE CORP VOL, VOL LDR AND
EMPL	
PEACE CORPS APPL - PHYSICAL EXAM	73 PEACE CORPS APPL -
PHYSICAL EXAM	
PERSONS IN MIL CUSTODY	74 PERSONS IN MIL CUSTODY
PROF EDCT/NEWS AND OIL CO/AUT	75 PROF EDCT/NEWS AND OIL
CO/AUT	
CARE	75 CARE
PUNITIVE DISCHG EXC, SENT NOT	76 PUNITIVE DISCHG EXC, SENT
NOT	
EXP	76 EXP
RED CROSS EMPLOYEE OUTSIDE US	77 RED CROSS EMPLOYEE OUTSIDE
US	
SERVICE HOME - OTHER THAN MIL	78 SERVICE HOME - OTHER THAN
MIL	
RET	78 RET
SOC SEC BENE MCARE/MCAID/SCHIP	79 SOC SEC BENE
MCARE/MCAID/SCHIP	
STATE DEPT EMPLOYEE - OUTSIDE US	80 STATE DEPT EMPLOYEE -
OUTSIDE US	
STATE DEPT FAM MBR - OUTSIDE US	81 STATE DEPT FAM MBR -
OUTSIDE US	
TRANS DEPT EMPLOYEE	82 TRANS DEPT EMPLOYEE
US CIV EMPL AUTH OCC HLTH	83 US CIV EMPL AUTH OCC HLTH
SERVICES	83 SERVICES
US CIV EMPL OF CONTRACTOR-PHYS	84 US CIV EMPL OF CONTRACTOR-
PHYS	
EXM	84 EXM
US CUSTOMS SERVICE AGENT	85 US CUSTOMS SERVICE AGENT
USA ACTIVE DUTY ENLISTED	86 USA ACTIVE DUTY ENLISTED
—	
USA ACTIVE DUTY OFFICER	87 USA ACTIVE DUTY OFFICER
USA AD RECRUIT	88 USA AD RECRUIT
USA AD RES-30 DAYS OR LESS, NOT	89 USA AD RES-30 DAYS OR
LESS, NOT	
LOD	89 LOD
USA AD RES ENLISTED	90 USA AD RES ENLISTED
USA AD RES OFFICER	91 USA AD RES OFFICER
USA APPLICANT/REGISTRANT	92 USA APPLICANT/REGISTRANT
USA DECEASED SPONSOR	93 USA DECEASED SPONSOR
USA FAM MBR AD	94 USA FAM MBR AD
USA FAM MBR DECEASED AD	95 USA FAM MBR DECEASED AD
USA FAM MBR DECEASED RETIRED	96 USA FAM MBR DECEASED
RETIRED	

Provider Type 57

USA FAM MBR FAD-TRANS ASSIST ACT ASSIST ACT	97	USA FAM MBR FAD-TRANS
USA FAM MBR RET	98	USA FAM MBR RET
USA FAM MBR UNREMARR FRM SPOUSE SPOUSE	99	USA FAM MBR UNREMARR FRM
USA FRM AD-TRANS ASSISTANCE ACT ASSISTANCE ACT	100	USA FRM AD-TRANS
USA FRM MEMBER-MATERNITY CARE CARE	101	USA FRM MEMBER-MATERNITY
USA NEWBORN OF FRM SERVICE MBR MBR	102	USA NEWBORN OF FRM SERVICE
USA NEWBORN OF SPONSOR'S DAUGHTER	103	USA NEWBORN OF SPONSOR'S
USA NG-30 DAYS OR LESS, NOT LOD NOT LOD	103	DAUGHTER
USA NG ENLISTED	104	USA NG-30 DAYS OR LESS,
USA NG INACT DUTY TRG - NOT LOD NOT LOD	105	USA NG ENLISTED
USA NG INACT DUTY TRG ENL	106	USA NG INACT DUTY TRG -
USA NG INACT DUTY TRG OFF	107	USA NG INACT DUTY TRG ENL
USA NG OFFICER	108	USA NG INACT DUTY TRG OFF
USA RES INACT DUTY TRG - NOT LOD NOT LOD	109	USA NG OFFICER
USA RES INACT DUTY TRG ENLISTED ENLISTED	110	USA RES INACT DUTY TRG -
USA RES INACT DUTY TRG OFFICER OFFICER	111	USA RES INACT DUTY TRG
USA RET LOS ENLISTED	112	USA RES INACT DUTY TRG
USA RET LOS OFFICER	113	USA RET LOS ENLISTED
USA RET PDRL ENLISTED	114	USA RET LOS OFFICER
USA RET PDRL OFFICER	115	USA RET PDRL ENLISTED
USA RET TDRL ENLISTED	116	USA RET PDRL OFFICER
USA RET TDRL OFFICER	117	USA RET TDRL ENLISTED
USA ROTC	118	USA RET TDRL OFFICER
USA UNREMARRIED FRM SPOUSE	119	USA ROTC
USAF ACADEMY CADET	120	USA UNREMARRIED FRM SPOUSE
USAF ACTIVE DUTY	121	USAF ACADEMY CADET
USAF AD RECRUIT	122	USAF ACTIVE DUTY
USAF AD RES-30 DAYS OR LESS, NOT LESS, NOT	123	USAF AD RECRUIT
LOD	124	USAF AD RES-30 DAYS OR
USAF AD RES	124	LOD
USAF APPLICANT/REGISTRANT	125	USAF AD RES
USAF FAM MBR AD	126	USAF APPLICANT/REGISTRANT
USAF FAM MBR DECEASED AD	127	USAF FAM MBR AD
USAF FAM MBR DECEASED RETIRED RETIRED	128	USAF FAM MBR DECEASED AD
USAF FAM MBR FAD-TRANS ASSIST ASSIST	129	USAF FAM MBR DECEASED
ACT	130	USAF FAM MBR FAD-TRANS
USAF FAM MBR RET	130	ACT
USAF FAM MBR UNREMARR FRM SPOUSE SPOUSE	131	USAF FAM MBR RET
USAF FRM AD-TRANS ASSISTANCE ACT ASSISTANCE ACT	132	USAF FAM MBR UNREMARR FRM
USAF FRM MEMBER-MATERNITY CARE CARE	133	USAF FRM AD-TRANS
	134	USAF FRM MEMBER-MATERNITY

USAF NG-30 DAYS OR LESS, NOT LOD
NOT LOD

135 USAF NG-30 DAYS OR LESS,

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 USAF NG
 USAF NG INACT DUTY TRG
 USAF RES INACT DUTY TRG - NOT
 NOT
 LOD
 USAF RES INACT DUTY TRG
 USAF RET LOS ENLISTED
 USAF RET LOS OFFICER
 USAF RET PDRL ENLISTED
 USAF RET PDRL OFFICER
 USAF RET TDRL ENLISTED
 USAF RET TDRL OFFICER
 USAF ROTC
 USAF UNREMARRIED FRM SPOUSE
 SPOUSE
 USCG ACADEMY CADET
 USCG ACTIVE DUTY
 USCG AD RECRUIT
 USCG AD RES
 USCG APPLICANT/REGISTRANT
 USCG AUXILIARY PERSONNEL
 USCG FAM MBR AD
 USCG FAM MBR DECEASED AD
 USCG FAM MBR DECEASED RETIRED
 RETIRED
 USCG FAM MBR RET
 USCG RES INACT DUTY TRG
 USCG RET LOS
 USCG RET PDRL
 USCG RET TDRL
 USCG UNREMARRIED FRM SPOUSE
 SPOUSE
 USFHP ENROLLEE - EMERGENCY
 USMA CADET
 USMC ACTIVE DUTY
 USMC AD RECRUIT
 USMC AD RES-30 DAYS OR LESS, NOT
 LESS, NOT
 LOD
 USMC AD RES
 USMC APPLICANT/REGISTRANT
 USMC FAM MBR AD
 USMC FAM MBR DECEASED AD
 USMC FAM MBR DECEASED RETIRED
 RETIRED
 USMC FAM MBR RET
 USMC FRM MEMBER-MATERNITY CARE
 CARE
 USMC NEWBORN OF SPONSOR'S
 DAUGHTER
 USMC RES INACT DUTY TRG
 USMC RET LOS ENLISTED

136 USAF NG
 137 USAF NG INACT DUTY TRG
 138 USAF RES INACT DUTY TRG -

 138 LOD
 139 USAF RES INACT DUTY TRG
 140 USAF RET LOS ENLISTED
 141 USAF RET LOS OFFICER
 142 USAF RET PDRL ENLISTED
 143 USAF RET PDRL OFFICER
 144 USAF RET TDRL ENLISTED
 145 USAF RET TDRL OFFICER
 146 USAF ROTC
 147 USAF UNREMARRIED FRM

 148 USCG ACADEMY CADET
 149 USCG ACTIVE DUTY
 150 USCG AD RECRUIT
 151 USCG AD RES
 152 USCG APPLICANT/REGISTRANT
 153 USCG AUXILIARY PERSONNEL
 154 USCG FAM MBR AD
 155 USCG FAM MBR DECEASED AD
 156 USCG FAM MBR DECEASED

 157 USCG FAM MBR RET
 158 USCG RES INACT DUTY TRG
 159 USCG RET LOS
 160 USCG RET PDRL
 161 USCG RET TDRL
 162 USCG UNREMARRIED FRM

 163 USFHP ENROLLEE - EMERGENCY
 164 USMA CADET
 165 USMC ACTIVE DUTY
 166 USMC AD RECRUIT
 167 USMC AD RES-30 DAYS OR

 167 LOD
 168 USMC AD RES
 169 USMC APPLICANT/REGISTRANT
 170 USMC FAM MBR AD
 171 USMC FAM MBR DECEASED AD
 172 USMC FAM MBR DECEASED

 173 USMC FAM MBR RET
 174 USMC FRM MEMBER-MATERNITY

 175 USMC NEWBORN OF SPONSOR'S
 175 DAUGHTER
 176 USMC RES INACT DUTY TRG
 177 USMC RET LOS ENLISTED

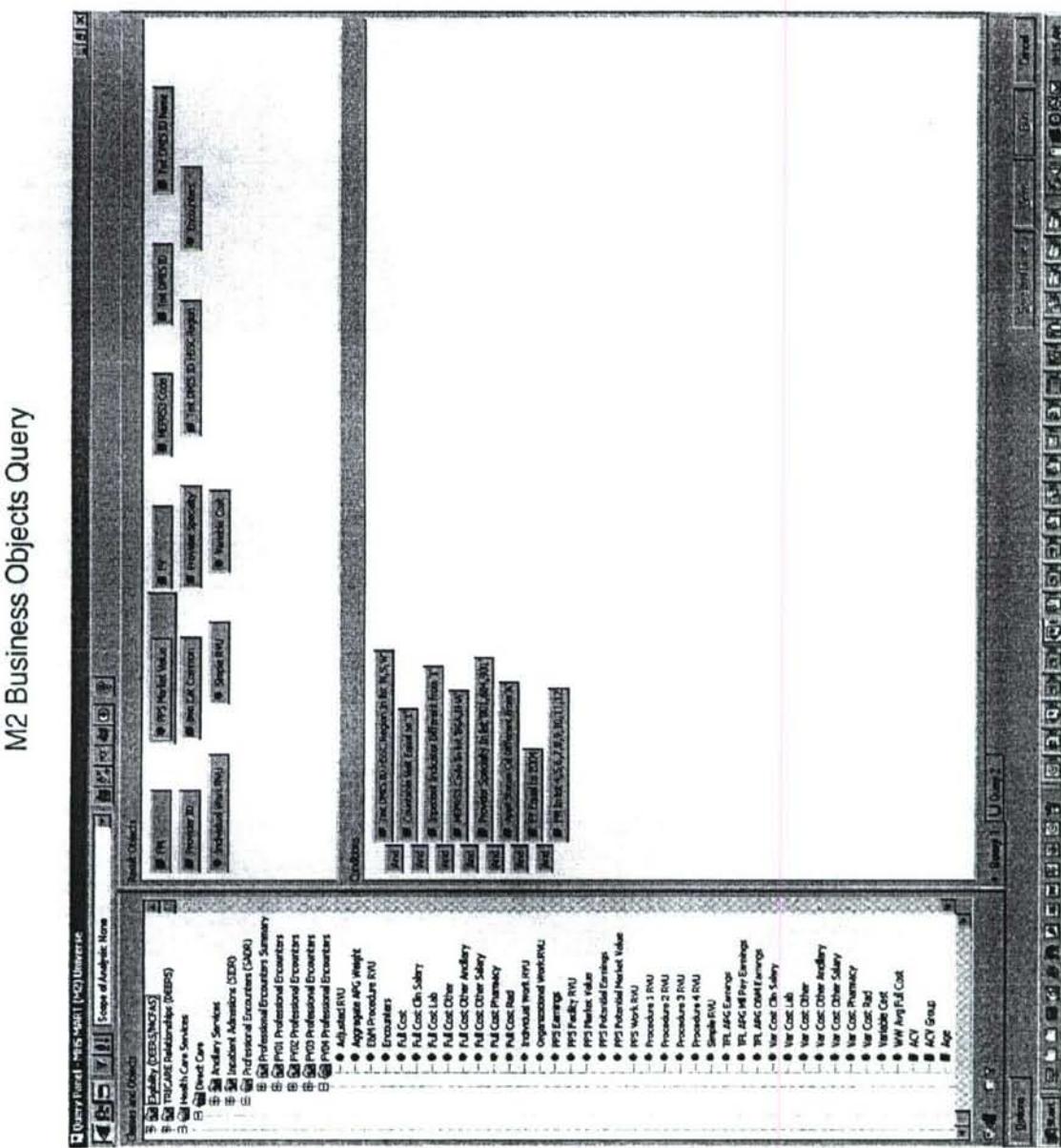
USMC RET LOS OFFICER	178 USMC RET LOS OFFICER
USMC RET PDRL ENLISTED	179 USMC RET PDRL ENLISTED
USMC RET PDRL OFFICER	180 USMC RET PDRL OFFICER
USMC RET TDRL ENLISTED	181 USMC RET TDRL ENLISTED
USMC RET TDRL OFFICER	182 USMC RET TDRL OFFICER
USMC UNREMARRIED FRM SPOUSE	183 USMC UNREMARRIED FRM
SPOUSE	
USN ACADEMY CADET	184 USN ACADEMY CADET
USN ACTIVE DUTY	185 USN ACTIVE DUTY
 -	
USN AD RECRUIT	186 USN AD RECRUIT
USN AD RES-30 DAYS OR LESS, NOT	187 USN AD RES-30 DAYS OR
LESS, NOT	
LOD	187 LOD
USN AD RES	188 USN AD RES
USN APPLICANT/REGISTRANT	189 USN APPLICANT/REGISTRANT
USN FAM MBR AD	190 USN FAM MBR AD
USN FAM MBR DECEASED AD	191 USN FAM MBR DECEASED AD
USN FAM MBR DECEASED RETIRED	192 USN FAM MBR DECEASED
RETIRED	
USN FAM MBR FAD-TRANS ASSIST ACT	193 USN FAM MBR FAD-TRANS
ASSIST ACT	
USN FAM MBR RET	194 USN FAM MBR RET
USN FAM MBR UNREMARRIED FRM SPOUSE	195 USN FAM MBR UNREMARRIED FRM
SPOUSE	
USN FRM AD-TRANS ASSISTANCE ACT	196 USN FRM AD-TRANS
ASSISTANCE ACT	
USN RES INACT DUTY TRG - NOT LOD	197 USN RES INACT DUTY TRG -
NOT LOD	
USN RES INACT DUTY TRG	198 USN RES INACT DUTY TRG
USN RET LOS ENLISTED	199 USN RET LOS ENLISTED
USN RET LOS OFFICER	200 USN RET LOS OFFICER
USN RET PDRL ENLISTED	201 USN RET PDRL ENLISTED
USN RET PDRL OFFICER	202 USN RET PDRL OFFICER
USN RET TDRL ENLISTED	203 USN RET TDRL ENLISTED
USN RET TDRL OFFICER	204 USN RET TDRL OFFICER
USN ROTC	205 USN ROTC
USN UNREMARRIED FRM SPOUSE	206 USN UNREMARRIED FRM SPOUSE
USO PERS AND FAM MBR OUTSIDE US	207 USO PERS AND FAM MBR
OUTSIDE US	
USPHS ACTIVE DUTY	208 USPHS ACTIVE DUTY
USPHS AD RES	209 USPHS AD RES
USPHS APPLICANT/REGISTRANT	210 USPHS APPLICANT/REGISTRANT
USPHS FAM MBR AD	211 USPHS FAM MBR AD
USPHS FAM MBR DECEASED RETIRED	212 USPHS FAM MBR DECEASED
RETIRED	
USPHS FAM MBR RET	213 USPHS FAM MBR RET
USPHS RET LOS	214 USPHS RET LOS
USPHS RET TDRL	215 USPHS RET TDRL
VETERANS ADMIN BENEFICIARY	216 VETERANS ADMIN BENEFICIARY
VOL DONOR ORGAN/BLOOD NO CHARGE	217 VOL DONOR ORGAN/BLOOD NO
CHARGE	
VOL SUBJECT RESEARCH PROJECT	218 VOL SUBJECT RESEARCH
PROJECT	
WC-CIV, DOD EMPL	219 WC-CIV, DOD EMPL

Provider Type 60

WC-CIV, FED EMPL	220	WC-CIV, FED EMPL
WC-DOD BENE, DOD EMPL	221	WC-DOD BENE, DOD EMPL
WC-DOD BENE, FED EMPL	222	WC-DOD BENE, FED EMPL
WC-DOD BENE, NON-FED EMPL	223	WC-DOD BENE, NON-FED EMPL
WELFARE WRKR/VOL/STUDENT NURSE NURSE	224	WELFARE WRKR/VOL/STUDENT
YTH GRP EMRG-MIL SPON-DOD INSTL INSTL	225	YTH GRP EMRG-MIL SPON-DOD

Appendix F

M2 Business Objects Query



M2 Business Objects Query

Appendix G

SPSS Output

Descriptive Statistics

	Mean	Std. Deviation	N
Qust_compsat Q7 Overall Sat w/Prvdr	4.54	.986	104013
Age_17andBelow	.16	.362	104013
Age_18to24	.13	.337	104013
Age_25to34	.17	.376	104013
Age_35to44	.19	.393	104013
Age_65orMore	.09	.286	104013
Cat_OTH	.27	.442	104013
Cat_RET	.13	.340	104013
Cat_FM	.32	.467	104013
Hosp	.32	.468	104013
MedCen	.16	.370	104013
NP	.23	.421	104013
PA	.29	.454	104013
Patient_Gender	.52	.500	104013
Qust_MPCM	.29	.452	104013
Rnk_O1	.02	.134	104013
Rnk_O2	.03	.163	104013
Rnk_O3	.17	.374	104013
Rnk_O4	.14	.344	104013
Rnk_O5	.04	.190	104013
Rnk_O6	.01	.103	104013
Rnk_UKN	.00	.038	104013

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	Rnk_UKN, Age_ 35to44, Rnk_O6, Rnk_O5, Cat_FM, Qust_ MPCM, MedCen, Rnk_O4, Rnk_O1, Rnk_O2, Age_ 18to24, NP, Rnk_ O3, Hosp, Age_ 65orMore, Patient_ Gender, Age_ 25to34, PA, Cat_RET, Age_ 17and Below, Cat_OTH ^a		Enter

a. All requested variables entered.
 b. Dependent Variable: Qust_compsat
 Q7 Overall Sat w/Prvdr

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.171 ^a	.029	.029	.972	.029	149.814	21	103991	.000

a. Predictors: (Constant), Rnk_UKN, Age_35to44, Rnk_O6, Rnk_O5, Cat_FM, Qust_MPCM, MedCen, Rnk_O4, Rnk_O1, Rnk_O2, Age_18to24, NP, Rnk_O3, Hosp, Age_65orMore, Patient_Gender, Age_25to34, PA, Cat_RET, Age_17andBelow, Cat_OTH

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2971.944	21	141.521	149.814	.000 ^a
	Residual	98234.422	103991	.945		
	Total	101206.37	104012			

a. Predictors: (Constant), Rnk_UKN, Age_35to44, Rnk_O6, Rnk_O5, Cat_FM, Qust_MPCM, MedCen, Rnk_O4, Rnk_O1, Rnk_O2, Age_18to24, NP, Rnk_O3, Hosp, Age_65orMore, Patient_Gender, Age_25to34, PA, Cat_RET, Age_17andBelow, Cat_OTH

b. Dependent Variable: Qust_compsat Q7 Overall Sat w/Prvdr

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.	Correlations		
		B	Std. Error	Beta				Zero-order	Partial	Part
1	(Constant)	4.496	.012			387.921	.000			
	Age_17andBelow	-.077	.012	-.028	-6.208	.000	.006	-.019	-.019	
	Age_18to24	-.269	.012	-.092	-23.282	.000	-.085	-.072	-.071	
	Age_25to34	-.218	.011	-.083	-19.609	.000	-.073	-.061	-.060	
	Age_35to44	-.097	.010	-.039	-9.463	.000	-.013	-.029	-.029	
	Age_65orMore	.139	.012	.040	11.630	.000	.092	.036	.036	
	Cat_OTH	.094	.010	.042	9.215	.000	.054	.029	.028	
	Cat_RET	.112	.013	.039	8.657	.000	.078	.027	.026	
	Cat_FM	.057	.010	.027	5.479	.000	-.025	.017	.017	
	Hosp	.019	.007	.009	2.684	.007	.020	.008	.008	
	MedCen	-.002	.009	-.001	-.237	.813	.029	-.001	-.001	
	NP	.093	.008	.040	11.891	.000	.051	.037	.036	
	PA	-.014	.008	-.006	-1.743	.081	-.058	-.005	-.005	
	Patient_Gender	-.015	.008	-.008	-1.926	.054	.003	-.006	-.006	
	Qust_MPCM	.093	.007	.043	13.230	.000	.070	.041	.040	
	Rnk_O1	.122	.023	.017	5.239	.000	-.012	.016	.016	
	Rnk_O2	.135	.019	.022	6.941	.000	-.007	.022	.021	
	Rnk_O3	.067	.008	.026	7.958	.000	.003	.025	.024	
	Rnk_O4	.099	.009	.035	10.626	.000	.032	.033	.032	
	Rnk_O5	.083	.016	.016	5.136	.000	.015	.016	.016	
	Rnk_O6	.160	.030	.017	5.421	.000	.019	.017	.017	
	Rnk_UKN	-.074	.080	-.003	-.922	.357	-.002	-.003	-.003	

a. Dependent Variable: Qust_compsat Q7 Overall Sat w/Prvdr

REPORT DOCUMENTATION PAGE

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14. ABSTRACT The purpose of this one year retrospective quantitative study is to determine if the type of provider (physician, nurse practitioner, and physician assistant) influences patient satisfaction and productivity. 104,013 Army beneficiaries who visited their Primary Care Managers (PCM) from January 2004 to December 2004, were surveyed and their results were used as the sample for this study. Provider productivity and cost efficiency within CONUS Military Treatment Facilities (MTFs) was evaluated using the period of January 2004 to December 2004, with a sample size of 20,421. The alpha level was set at .05 and multiple linear regression and analysis of variance were used to determine the predictive value of the model. The results show that there is a statistically significant positive relationship between nurse practitioners and patient satisfaction. The analysis of variance showed that physician assistants have a lower cost per visit ratio, and there is no difference between provider types and relative value units.				
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